

## **Appendix 1. Regulation Summary**

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Env Area	Activity, Program or Permit	Citation	Title	Website
Air Quality	Open burning	401 KAR 63:005.	Open burning	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Air Quality	Operations that Generate Dust	401 KAR 63:010	Fugitive Emissions	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Emergencies	DOT Reporting requirements for spills	49 CFR 171.15 – 171.16	Title 49 Transportation, Part 171- General Information, Regulations and Definitions	<a href="http://www.gpoaccess.gov/ecfr/">http://www.gpoaccess.gov/ecfr/</a>
Emergencies	DOT Reporting requirements for spills	49 CFR 172	Title 49 Transportation, Part 172 - Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, And Training Requirements	<a href="http://www.gpoaccess.gov/ecfr/">http://www.gpoaccess.gov/ecfr/</a>
Emergencies	Report oil spills of 25 gallons or more	KRS 224.01-400	Reportable quantities and release notification requirements for hazardous substances, pollutants, or contaminants hazardous substances, pollutants, or contaminants	<a href="http://www.lrc.state.ky.us/krs/titles.htm">http://www.lrc.state.ky.us/krs/titles.htm</a>
Emergencies	Spills and Emergencies	40 CFR 302	Part 302-Designation, Reportable Quantities, And Notification	<a href="http://www.gpoaccess.gov/ecfr/index.html">http://www.gpoaccess.gov/ecfr/index.html</a>
EPCRA	Participation on local emergency commission	42 U.S.C. 11001; KRS 39E	Title 42 - The Public Health And Welfare, Chapter 116 - Emergency Planning And Community Right-To-Know, Subchapter I - Emergency Planning And Notification Section 11001. Establishment Of State Commissions, Planning Districts, And Local Committees	<a href="http://assembler.law.cornell.edu/uscode/html/uscode42/usc_sec_42_00011001----000-.html">http://assembler.law.cornell.edu/uscode/html/uscode42/usc_sec_42_00011001----000-.html</a>
EPCRA	Tier II Form and Fee	106 KAR 1:081	Title 106 - Department of Military Affairs, Chapter 1:081. Kentucky Emergency Response Commission fee system requirements	<a href="http://www.lrc.state.ky.us/kar/106/001/081.htm">http://www.lrc.state.ky.us/kar/106/001/081.htm</a>
GWPP	Groundwater Protection Plan	401 KAR 5:037	Groundwater protection plans	<a href="http://www.lrc.state.ky.us/kar/401/005/037.htm">http://www.lrc.state.ky.us/kar/401/005/037.htm</a>
Highway Maintenance	Dead Animal Pickup	301 KAR 3:120	Commercial Nuisance Wildlife Control	<a href="http://lrc.ky.gov/kar/301/003/120reg.htm">http://lrc.ky.gov/kar/301/003/120reg.htm</a>
KPDES	BMP Plan Requirements	401 KAR 5:065	KPDES permit conditions	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>

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Env Area	Activity, Program or Permit	Citation	Title	Website
KPDES	Definition of Pollution	KRS 224.01-010(35)	Definitions for chapter	<a href="http://www.lrc.state.ky.us/krs/titles.htm">http://www.lrc.state.ky.us/krs/titles.htm</a>
KPDES	KPDES	401 KAR 5:002	General permit procedure exemptions	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
KPDES	KPDES	401 KAR 5:031	Surface Water Standards	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
KPDES	KPDES	401 KAR 5:050-5:080,	KPDES Effluent Standards	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
KPDES	KPDES Discharge Authorization	401 KAR 5:055	Scope and applicability of the KPDES Program	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
KPDES	KPDES Permit	KRS 224.70-120	Permit to discharge pollutants into waters -- Fees	<a href="http://www.lrc.state.ky.us/krs/titles.htm">http://www.lrc.state.ky.us/krs/titles.htm</a>
KPDES	KPDES Permit	401 KAR 5:070	Provisions of the KPDES permit	
KPDES	List of Hazardous Pollutants	33 U.S.C. 1321 Section 311	Title 33 - Federal Water Pollution Control Act (i.e., Clean Water Act), Section 311- Oil and Hazardous Substance Liability	<a href="http://www.epa.gov/region5/water/pdf/ecwa_t3.pdf">http://www.epa.gov/region5/water/pdf/ecwa_t3.pdf</a>
KPDES	Reduce BMP Pollutants	KRS 224.07-110	Civil liability of persons polluting waters -- State may sue	<a href="http://www.lrc.state.ky.us/krs/titles.htm">http://www.lrc.state.ky.us/krs/titles.htm</a>
KPDES	Required detection limits for KPDES Permits	40 CFR 136	Title 40- Protection of Environment, Part 136 - Guidelines Establishing Test Procedures for the Analysis of Pollutants	<a href="http://www.gpoaccess.gov/cfr/index.html">http://www.gpoaccess.gov/cfr/index.html</a>
KPDES	Subsection (a)1 for toxic pollutant definitions	33 U.S.C. 1317 Section 307	Title 33 - Federal Water Pollution Control Act (i.e., Clean Water Act), Section 307 - Toxic and Pretreatment Effluent Standards	<a href="http://www.epa.gov/region5/water/pdf/ecwa_t3.pdf">http://www.epa.gov/region5/water/pdf/ecwa_t3.pdf</a>
MSDS	MSDS Sheet Requirements	29 CFR 1910.1200	Labor, Occupational Safety and Health Standards, Subpart Z-Toxic and Hazardous Substances, Hazard Communication	<a href="http://www.gpoaccess.gov/ecfr/">http://www.gpoaccess.gov/ecfr/</a>

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Env Area	Activity, Program or Permit	Citation	Title	Website
Oil	Standards for used oil generators	401 KAR 44:020	Title 401- Natural Resources And Environmental Protection Cabinet Department For Environmental Protection, Chapter 44 Standards for the Management of Used Oil	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Pesticides	Pesticide Containers – Waste Mgt Unit	401 KAR 47 & 48	Chapter 47: Solid Waste Facilities and Chapter 48: Standards for Solid Waste Facilities	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Pesticides	Pesticide Management	7 U.S.C. 6	Title 7—Agriculture, Chapter 6--Insecticides And Environmental Pesticide Control	<a href="http://assembler.law.cornell.edu/uscode/html/uscode07/usc_sup_01_7_10_6.html">http://assembler.law.cornell.edu/uscode/html/uscode07/usc_sup_01_7_10_6.html</a>
SPCC	Oil Contingency Planning requirements	40 CFR 109	Title 40 - Protection of Environment, Part 109 Criteria for State, Local and Regional Oil Removal Contingency Plans	<a href="http://www.gpoaccess.gov/cfr/index.html">http://www.gpoaccess.gov/cfr/index.html</a>
SPCC	Requirements to prepare and implement SPCC plan	40 CFR 112	Title 40 - Protection of Environment, Part 112 - Oil Pollution Prevention	<a href="http://www.gpoaccess.gov/cfr/index.html">http://www.gpoaccess.gov/cfr/index.html</a>
Streams	Administrative Procedures for permits for work in and around streams	33 CFR 209	Navigation and Navigable Waters, Administrative Procedure	<a href="http://www.gpoaccess.gov/ecfr/">http://www.gpoaccess.gov/ecfr/</a>
Streams	Definition of Waters of the US	33 CFR 328	Title 33 - Navigation and Navigable Waters, Part 328 - Definition of Waters of the US	<a href="http://www.gpoaccess.gov/ecfr/">http://www.gpoaccess.gov/ecfr/</a>
Streams	Enforcement of permits for work in and around streams	33 CFR 326	Title 33 - Navigation and Navigable Waters, Part 326- Enforcement	<a href="http://www.gpoaccess.gov/ecfr/">http://www.gpoaccess.gov/ecfr/</a>
Streams	In-Stream Permit	KRS 224.16-050	Issuance of federal permits by cabinet	<a href="http://www.lrc.state.ky.us/krs/titles.htm">http://www.lrc.state.ky.us/krs/titles.htm</a>
Streams	National Wild and Scenic Rivers	P.L. 90-542	National Wild and Scenic Rivers Act	<a href="http://www.nps.gov/rivers/wsra.html">http://www.nps.gov/rivers/wsra.html</a>
Streams	Natural Heritage Program	400 KAR 2	Title 400- Natural Resources And Environmental Protection Cabinet, Chapter 2 Nature Preserves Commission	<a href="http://www.lrc.state.ky.us/kar/TITLE400.HTM">http://www.lrc.state.ky.us/kar/TITLE400.HTM</a>
Streams	Permits for work in and around streams	33 CFR 325	Title 33 - Navigation and Navigable Waters, Part 135 - Processing of Department of the Army Permits	<a href="http://www.gpoaccess.gov/ecfr/">http://www.gpoaccess.gov/ecfr/</a>

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Env Area	Activity, Program or Permit	Citation	Title	Website
Streams	Special Use Waters	401 KAR 4:100	Title 401- Natural Resources And Environmental Protection Cabinet Department For Environmental Protection, Chapter 4, Section 100 - Wild River Boundaries	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Streams	Special Use Waters	401 KAR 5:026	Designation of Uses of Surface Waters	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Streams	Special Use Waters	401 KAR 5:030	Antidegradation Policy Implementation Methodology	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Streams	Stream Construction Criteria	401 KAR 4:060	Title 401- Natural Resources And Environmental Protection Cabinet Department For Environmental Protection, Chapter 4, Section 060 - Stream construction criteria	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Waste	Handling Bulk Liquids	401 KAR 34:190.	Tanks	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Waste, Haz	Hazardous Waste	401 KAR 31:040	Listed Hazardous Compounds	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Waste, Haz	Hazardous Waste Regulations	401 KAR 30-38	Title 401- Natural Resources And Environmental Protection Cabinet Department For Environmental Protection, Chapters 30 - 38	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Waste, Haz	RCRA	40 U.S.C. 82 Section 6901	Title 42--The Public Health And Welfare, Chapter 82--Solid Waste Disposal, Subchapter I--General Provisions, Sec. 6901. Congressional Findings	<a href="http://www.madcon.com/law_lib/rcra/rcra_code.txt">http://www.madcon.com/law_lib/rcra/rcra_code.txt</a>
Waste, Haz	Section 5 Tox Concentrations	401 KAR 31:030	Characteristics of hazardous waste	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Waste, Haz	Threshold Planning Quantities for Extremely Haz Substances	40 CFR 355	Title 40- Protection of Environment, Part 355 - Emergency Planning and Notification	<a href="http://www.gpoaccess.gov/cfr/index.html">http://www.gpoaccess.gov/cfr/index.html</a>
Waste, Haz	Waste Management Asphalt Cleaning Haz Waste Exclusion	401 KAR 31:010	General Provisions for Hazardous Wastes	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Waste, Oil	Used oil must made available for recycling	40 CFR 279	Title 40- Protection of Environment, Part 279 - Standards for the Management of Used Oil	<a href="http://www.gpoaccess.gov/cfr/index.html">http://www.gpoaccess.gov/cfr/index.html</a>

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Waste, Oil	Waste Oil	401 KAR 44:080.	Standards for use as a dust suppressant and disposal of used oil	
Waste, Tires	Tire Registration	KRS 224.50-852	Waste tire program -- Administrative regulations	<a href="http://www.lrc.state.ky.us/krs/titles.htm">http://www.lrc.state.ky.us/krs/titles.htm</a>
Waste, Universal	Universal Wastes	401 KAR 32 and 36:070	Chapter 32 Standards Applicable to Generators of Hazardous Waste and 401 KAR 36:070. Spent lead-acid batteries being reclaimed	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>
Waste, Universal	Universal Wastes	401 KAR 43	Title 401- Natural Resources And Environmental Protection Cabinet Department For Environmental Protection, Chapter 43 Standards for Special Collection System Wastes	<a href="http://www.lrc.state.ky.us/kar/TITLE401.HTM">http://www.lrc.state.ky.us/kar/TITLE401.HTM</a>

## **Appendix 2. Facility Stormwater Best Management Practices Plan**



# Stormwater Best Management Practices Plan for

**District 5 -  
Poplar Level – Lot No: 392  
4334 Poplar Level Road  
Louisville, Kentucky 40213**

**Last Updated:** \_\_\_\_\_

**Plan Prepared By:**


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Appendix A – KPDES Permit



[Guidance Note: **AFTER** Template has been completed and guidance text removed, change the page numbers above to match actual section locations.]

[Guidance Note: This example plan has been prepared to be used as a template. It contains guidance text that is meant to give the person(s) preparing the site-specific plan information about what information is needed for the section, special considerations to made and/or how the information should be presented. The guidance text is shaded in Gray, started with the words “Guidance Note” and bound by Brackets. There are also blanks left in the regular text for basic information or data to be inserted by the person(s) preparing the plan. These areas are highlighted in yellow. When all tables, figures, prompts, notes and questions have been addressed, then the guidance notes can be deleted.]

## 1. PURPOSE AND OBJECTIVES

The purpose of this Plan is to document in a narrative form, including all necessary plot plans, drawings, etc. necessary to be consistent with 401 KAR 5:065, Section 2(10) pursuant to KRS 224.70-110, which prevents or minimizes the potential release of “BMP Pollutants” from ancillary activities through the plant site runoff; spillage or leaks, sludge or waste disposals; or drainage of raw material storage. This is being developed as part of the implementation of Kentucky Pollutant Discharge Elimination System (KPDES) General Permit No: KYG500000 as administered by the Kentucky Department For Environmental Protection, Division of Water (KDOW), April 1, 2003.

Pollutants of concern as demonstrated through effluent limitations and monitoring requirements are:

- Flow (as a reporting measure only)
- Total Suspended Solids
- Oil and Grease
- Chlorides (for facilities storing bulk road salt)
- pH

## 2. FACILITY DESCRIPTION

This facility is located at 4334 Poplar Level Road in Louisville (Jefferson County), Kentucky. It is approximately \_\_\_\_\_ acres with entrances on the \_\_\_\_ and \_\_\_\_ boundaries. See **Figure 1 – Facility Map** for a layout of the property. The primary purpose of this facility is the storage of materials and equipment necessary for the operation and maintenance of the state highways in the area. **Table 1** presents describes the activities / operations that may be sources of BMP pollutants for this facility.

**Table 1 - Potential Stormwater Pollutant Sources and Quantities**

<i>Potential Source Listing</i>	<i>Location (Map Reference #)</i>	<i>Potential Quantity of Loss</i>
<b>Total Suspended Solids:</b>		
Dense Grade Aggregate (DGA) storage	Area A	Minor Fines
Floor Drain outlet	Area B	Moderate
Exposed Parking	Area C	Gravel: Minor Fines Paved: Minimal Fines
Sand Stockpile	Area D	Moderate Particulate
Soil Stockpile	Area E	Minor to Extreme
Asphalt Milling Stockpile	Area F	Minor Fines
Vehicle Tracking	Area G	Minor to Moderate Particulate
Other potential source	Area R	Description
<b>Oil and Grease:</b>		
Cold mix storage	Area H	Minor
Cold mix production	Area I	Moderate
Materials Transfer / Loading and Unloading Points	Area J	Minimal
Vehicle Storage and Parking Areas	Area K	Negligible
Uncovered Vehicle Wash Areas	Area L	Negligible
Floor Drain outlet	Area B	Minimal
Other potential source	Area S	Description
<b>Chlorides:</b>		
Bulk Salt Storage Area	Area M	Moderate to High
Liquid Calcium Storage	Area N	Moderate to High
Brine Production and Storage Area	Area P	Minimal
Vehicle Cleaning	Area Q	Minimal
Floor Drain outlet	Area B	Moderate
Other potential source	Area T	Description

[Guidance Note: The table above should be modified to include all other potential stormwater pollution sources (**even those not already listed**) that are identified through a site walk and assessment by (at least) the Facility Superintendent, Division of Operations Manager's representative, Division of Operations Field Engineer and District Maintenance Engineer. Each source should have a unique letter. If the same type source is located in

several places at the facility, then it should be shown on the map using the same letter followed by a letter. In example, there are two piles of sand located at different ends of the facility. The map should show a **D1** on one of the piles and **D2** on the other.]

### **Outfall Location**

An assessment of the facility was performed to identify the hydraulic outfalls of the facility that were isolated from mixing with off-site stormwater runoff. These points are identified on **Figure 1 – Facility Map** with the **SW#** designations. The “#” indicating multiple outfalls.

### **Flow Path of Potential Pollutants**

As visual assessment was performed to identify the most likely flow paths of potential “BMP Pollutant” sources. The anticipated flow paths, including passage through BMPs is illustrated on **Figure 1 – Facility Map**.

### **BMPs Utilized**

As described in the remainder of this document, as the site was assessed and BMPs were selected to manage the pollutant risks identified. The non-structural BMPs that are applied on this site are described in Section 9. The structural BMPs are identified on **Figure 1 – Facility Map** with the designations described below. The “#” indicating multiple BMPs of this type are utilize on the site.

### **Structural BMPs - Facility Map Designations**

**GC#** - Swale (Grassed Channel)

**FC#** - Floatable Control

**FSB#** - Filter Strip and Buffer

**DT#** - Detention Pond

**ST#** - Sediment Forebay / Trap

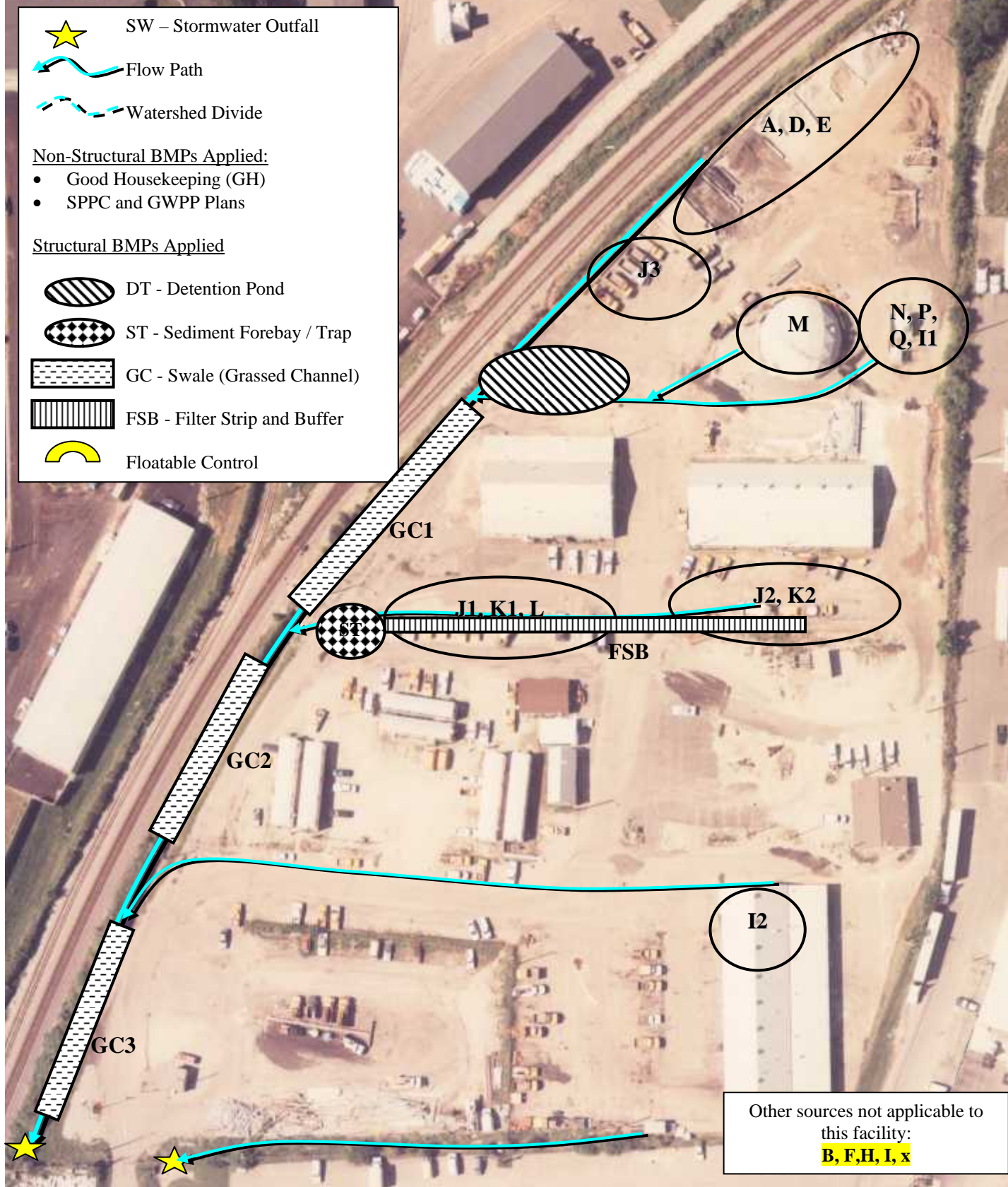
**SW#** - Stormwater Outfall

**[Guidance Note: the Figure 1- Facility Map needs to include the following notations for sources, BMPs and outfall. Flow paths are also to be included, but can be show without a designation.]**

**The PLAN shown in the figure is to represent the FUTURE CONDITIONS. The photographs are from 1995-1997 and may not show current conditions. Contact Division of Environmental Analysis if the aerial photo is not usable because site conditions have changes significantly. A legend has been set up with symbols/objects that can be copy (ctrl-C) and pasted (ctrl-V) onto the digital aerial photograph available on the KYTC server. It is important that the legend text remain. It can be moved around the page so that it does not cover important areas of the photograph.**

**Alternatively, Microstaion drawings or other methods can be used. The goal is to create map that is understandable to the facility staff and the state regulators.]**

Figure 1- Facilities Map





### 3. BMP COMMITTEE AND SELECTION PROCESS

The stormwater BMPs for this facility were selected through an assessment performed by (or provided input from) a committee of the following people.

- Facility Superintendent
- Division of Operations Manager's representative
- Division of Operations Field Engineer
- District Maintenance Engineer
- District Maintenance Superintendent
- Division of Environmental Analysis (representative for KPDES compliance)

The committee was used to:

- identify potential pollutant sources
- locate flow paths to site outfalls
- develop a BMP strategy to address sources that could potentially jeopardize the effluent limitations applied through the KPDES general stormwater permit.

The results of this process are documented throughout this document, including the information provided on the **Figure 1 - Facility Site Map**.

### 4. REPORTING INCIDENTS

As discussed in Section 7, a Discharge Monitoring Report (**DMR**) must be completed and delivered to the Kentucky Division of Water (KDOW). The data to be included in the DMR are monthly grab samples for Total Suspended Solids, Oil and Grease, Chlorides and pH at the site outfall(s) as well as estimated flow discharge for the storm event.

#### ***Emergency or Potential for Exceeding Permitted Limits***

In the event of a release of release of a BMP pollutant of concern at the facility that 1) could result in a hazardous condition or 2) the release of the pollutant from the site at level that may exceed the permitted discharge effluent limitations the following actions should be taken.

The Facility Superintendent shall be notified immediately and the following steps shall be taken:

a. Assessment of Hazard

- i. Upon notification of a petroleum-related spill, the first responder will determine the hazard potential of a spill response by determining at least the following factors:
  - The substance spilled and its hazard potential
  - The amount of the spill and the extent of spreading
  - The source of the leakage/spill
- ii. If a spill is determined to be of such a magnitude that it cannot be safely and effectively controlled by facility personnel, then the Facility Superintendent shall promptly notify outside emergency response agencies to implement control and cleanup.

b. Securing Spill Response Equipment

- i. Upon determining the hazard potential for the planned response action, the Facility Superintendent shall direct those who will respond to the spill to obtain the appropriate response equipment and personal protective equipment (PPE).
- c. Containment and Elimination of Spill Source
  - i. Upon obtaining the proper spill response tools and personal protective equipment (PPE) as necessary, the spill responder(s) shall first attempt to contain the spill to prevent its entry into a storm sewer, ditch, or any other conveyance that eventually discharges to the waters of the United States.
  - ii. At the same time as containment is being performed or as soon as possible after the containment, the spill responder(s) shall attempt to seal or otherwise stop the source of the spill. Common methods of eliminating a spill source include:
    - 1. closing valves
    - 2. leak stopping compound for pinhole leaks
    - 3. drum overpacks
    - 4. deactivating pumps
    - 5. diverting flow to another pathway as long as this pathway does not allow the spill to enter a navigable water course.
- d. Spill Cleanup
  - i. Once the spill is contained and the source eliminated, the spill responder(s) shall collect the spilled material by the appropriate manner and place the material into secure containers.
  - ii. The area or surface in contact with the spilled material shall be decontaminated by an appropriate method that is permissible under local, state, and federal laws. The specific method used will depend upon the substance, the availability of permitted sewer discharge to a Publicly owned Treatment Works (POTW), regulatory standards applicable to hazardous and toxic wastes, and other factors. The responder will select the appropriate decontamination method after determining the applicable facts and by conferring either with the regulators or an expert in the subject of spill response.
  - iii. All spill material and debris management will fully comply with applicable local, state, and federal laws regarding recycling or disposal of wastes. The preferred method is to recycle or reclaim materials from spills in an effort to minimize waste generation. Where this is not feasible or allowed, then disposal will be carried out in accordance with applicable local, state, or federal rules.

## 5. RISK IDENTIFICATION AND ASSESSMENT

An assessment was performed to identify the risk that permit BMP pollutants would leave the site in quantities that would exceed the permit discharge effluent limitations. This assessment is documented in **Figure 1 – Facility Site Map** and is summarized in **Table 1 – Potential Stormwater Pollutant Sources and Quantities**, as presented in Section 1.

This assessment included developing a facility map, or using an aerial photograph of the site, performing a site walk to identify easily and less apparent potential pollutant sources. The easily apparent potential pollutant sources were identified through an inventory of materials stored and visual survey of work areas. Looking for signs of pollutant transport on the site, such as visual observation of sheen, stains and structural changes to infrastructure (such as channel erosion and/or corrosion of pipes) were techniques used to identify the less apparent potential pollutant sources.

## 6. EMPLOYEE TRAINING

**General information training** is to be given to all facility employees so that they may be informed about the new site feature. At a minimum this will be performed annually in staff meeting discussions. The basic intent of this portion of training is to inform the facility employees of the site's stormwater BMPs, why it was done and what to do (or not do) to protect it. New employees should also participate in a training session upon hire. A copy of the BMP Plan will be kept in a conspicuous location where all employees may review it, whether for normal activities or for emergency and spill response.

**More focused training (Structural)** shall be performed for staff who are in charge of operation activities such as inspections, maintenance and monitoring. This training will be initiated through a preparatory training session to be performed prior to construction of any new stormwater BMPs. The intent of this training session is to provide the people who will be "in charge" of the new BMPs to see and appreciate the site changes that are being made and why they are being done. This session should provide the details necessary for long-term operation and maintenance of the BMP(s).

Materials/discussion will include:

- Inspection checklist
- Inspection schedule
- Anticipated maintenance schedule
- Maintenance procedure checklist
- Contact information for accumulated waste disposal
- Monitoring procedure checklist
- Contact information for additional questions

A copy of the BMP Plan will be kept in a conspicuous location where all employees may review it, whether for normal activities or for emergency and spill response.

**Follow-up training** for structural controls will be performed once every three months for the first 12- to 18-months and annually thereafter or when there have been changes made to the site BMPs or maintenance expectations. A copy of the BMP Plan will be kept in a conspicuous location where all employees may review it, whether for normal activities or for emergency and spill response.

**Training sessions (non-structural)**, similar to those described for structural controls above will be performed once every three months for the first 12- to 18-months and annually

thereafter or when there have been changes made to the site BMPs. A copy of the BMP Plan will be kept in a conspicuous location where all employees may review it, whether for normal activities or for emergency and spill response.

## **7. INSPECTIONS AND RECORDS**

Through the course of daily site walk / assessment, the Facility Superintendent shall perform or oversee the inspection of all structural BMPs and through other visual observations non-structural BMPs. At least once a month a more detailed inspection of structural BMPs will be. Inspection records will be maintained for a minimum of three years.

## **8. PREVENTATIVE MAINTENANCE**

Preventative maintenance will be performed for each structural control to ensure good working order and that permit discharge effluent limitations are not being exceeded, to the maximum extent practicable. The following preventative maintenance activities will be performed (by type of BMP).

### ***Swale (Grassed Channel) - GC***

A swale is a wide flat-bottomed grassed channel. Swales are an alternative that works well for linear locations, but are somewhat less effective than ponds and sediment traps. They are most effective when used in conjunction with a filter strip.

### ***Floatable Control - FC***

Floatable control is a management practice applied to many other BMPs when oil and grease is still a problem. It may involve installation of absorbent socks, filters or other materials to collect floating oil and grease. In other cases, floating booms, baffles or screens are used to collect the oil and grease much like an oil/water or grit separator.

### ***Filter Strip and Buffer - FSB***

A filter strip or buffer is a grassed area that treats sheet flow and is placed parallel to the contributing surface such as parking lot or roadway. They “treats” stormwater runoff by utilizing vegetation to slow the velocity of runoff allowing the removal of sediment and other pollutants through filtering and settling.

### ***Detention Pond - DT***

A detention/retention pond is an excavated area where runoff is collected and pollutants can settle or be absorbed. A detention pond releases to surface drainage while a retention pond relies on groundwater infiltration. Ponds are likely to significantly reduce a wide range of pollutants.

### ***Sediment Forebay / Trap - ST***

Sediment trap is a small excavated or bermed area where runoff from a small tributary area is detained and sediment can settle. This management practice is likely to significantly reduce sediment and floatable materials.

[Guidance note:

Remove the above text for BMPs that are not used at this facility.]



## 9. GOOD HOUSEKEEPING

Good housekeeping practices will be performed as part of the effort to ensure that permit discharge effluent limitations are not being exceeded, to the maximum extent practicable. These non-structural BMPs will focus on following procedures for:

- Containing/locating potential pollutant sources (especially bulk storage materials) to areas that are served by structural BMPs 2)
- appropriately responding to spills and other accidental on-site placement (that does not conform to establish procedures) of BMP Pollutants
- appropriately responding to spills and other accidental off-site release of BMP Pollutants that would be directed by Spill Prevention Control and Countermeasures (SPCC) or Groundwater Pollution Protection (GWPP) plans.

The following Good Housekeeping activities will be performed (by type of BMP).

### **Materials Handling, Transfer, Loading, Unloading and Wash out**

Prevent or reduce the discharge of pollutants to stormwater from outdoor loading/ unloading and storage of materials by enclosing or covering materials, installing secondary containment, and preventing stormwater run-on.

### **Vehicle Cleaning**

Prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning by washing in designated, contained areas only and eliminating discharges to the storm drain by infiltrating or recycling the wash water.

### **Vehicle Tracking**

Reducing or eliminating the tracking of sediment off-site may be achieved by using a stabilized access way for vehicles. This is not expected at all facility entrances/exits, but in areas where trucks may be traveling over exposed soil, such as an area used for bulk soil storage or on-site grading.

### **Grading and Soils Management**

Work on-site that includes extensive grading and soil exposure shall be conducted in areas serviced by appropriate BMPs. In areas with existing BMPs, flows from the exposed work areas shall be diverted to the BMPs and away from off site waterways to reduce the amount of sediment discharged by the site. If BMPs are unavailable, temporary BMPs shall be established to minimize the amount of sediment release as a result of the facility activities.

[Guidance note:

Remove the above text for BMPs that are not used at this facility.]

## 10. MATERIALS COMPATIBILITY

Materials, BMPs and potential pollutant sources were evaluated for materials compatibility. It was determined that there are no hazardous, health and safety or other relevant issues that have not already been address through other plans, training and procedures, such as the

availability of material safety data sheets (MSDS) that need to be addressed in this Plan. The assessment did not identify any compatibility issues that are of a concern for this BMP plan.

## 11. SECURITY

The following security measures have been implemented at the facility for protection against equipment tampering, trespassing, vandalism, or accidental release.

**Table 2 – Security Measures:**

<i>Security Measure Description (do not provide detailed information)</i>
Perimeter Fences
Guard posted at entrance
Security camera
Facility lighting
List where keys are stored and who has keys.
Fencing around detention / retention pond(s)
Other security measure
Other security measure
Other security measure

[Guidance Note: Delete and modify the information in the table above to make accurate for the facility.]

## 12. MATERIALS INVENTORY

A materials inventory was performed through the site risk identification and assessment. The materials that are relevant to this BMP Plan are identified in **Table 1 - Potential Stormwater Pollutant Sources and Quantities** and **Figure 1 - Facility Map**.

## 13. SPCC and GWPP PLANS

The BMP Plan was developed and will be implemented consistent with Spill Prevention Control and Countermeasures (SPCC) and Groundwater Pollution Protection (GWPP) plans for this facility. In cases where the plans are duplicative or in excess of the other, the most stringent activity will be applied.

## 14. MODIFICATIONS

The BMP plan will be modified as the site or operating conditions, that are not anticipated, change over time. Furthermore, the Plan will be changed if it is determined that the BMP Plan is ineffective as demonstrated in monitoring data.

The Facility Superintendent will assess if there have been any changes to the site that would require changes to the BMP Plan on at least once every three months for the first 12- to 18-months of the plan implementation. After it is clear that the BMP Plan is effective and BMPs are being operated properly, then assessments will be limited to annual site walks.

As the BMP Plan is changed, appropriate personnel and the Divisions of Operations and Department of Environmental Analysis and the KDOW will be notified and/or involved.



# Best Management Practices (BMP)

## Good Housekeeping / Containment

GH

Good housekeeping / containment are measures implemented to prevent or reduce the amount of pollutants discharged from the site as a result of regular facility operations. Good housekeeping consists of measures to educate employees on ways to keep potential stormwater pollutants including sediment, oil and grease and chlorides from getting into the drainage system.

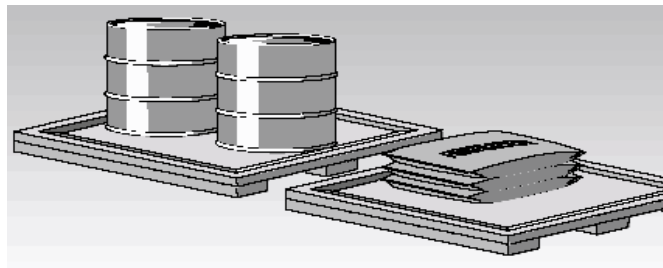


Figure: Materials Containment and Storage

Source: Volume 4 Best Management Practices: Stormwater Management Manual, Metropolitan Government of Nashville and Davidson County March 2000.

Low	Medium	High
○	●	●
Material or Pollutant Prevention Efficiency		
Sediment		●
Chlorides		●
Oil & Grease		●
O & M Frequency		●
Inspection Frequency		●
Capital Cost		○
Maintenance Costs	●	

Good housekeeping Activities	
Materials Handling, Transfer, Loading, Unloading and Washout	<ul style="list-style-type: none"> <li>Material Delivery Practices</li> <li>Material Storage Areas &amp; Practices</li> <li>Liquid calcium truck clean out</li> <li>Used road salt truck cleanout</li> </ul>
Vehicle Washing and Rinsing	<ul style="list-style-type: none"> <li>Wash vehicles under cover</li> <li>Rinsing permitted outside – draining to BMPs</li> </ul>
Vehicle Tracking	<ul style="list-style-type: none"> <li>Stabilize vehicle access way</li> <li>Tire mud/sediment stays on-site</li> </ul>
Grading and Soils Management	<ul style="list-style-type: none"> <li>Limit disturbed areas</li> <li>BMPs to reduce sediment Discharges</li> </ul>
Employee Education Requirements	<ul style="list-style-type: none"> <li>General information - everybody</li> <li>Focused follow-up - selected staff</li> <li>Review SPCC Plan</li> <li>Review GWPP Plan</li> </ul>

### Approach

Good housekeeping practices will be performed as part of the effort to ensure that permit discharge effluent limitations are not being exceeded, to the maximum extent practicable. These non-structural BMPs will focus on following procedures for:

- **Containing/locating potential pollutant sources** (especially bulk storage materials) to areas that are served by structural BMPs
- Appropriately responding to spills and other accidental on-site placement (that does not conform to establish procedures) of BMP Pollutants
- Appropriately responding to spills and other accidental off-site release of BMP Pollutants that would be directed by Spill Prevention Control and Countermeasures (SPCC) or Groundwater Pollution Protection (GWPP) plans.

The following Good Housekeeping activities will be performed / employees trained in (by type of BMP).

1. Materials Handling, Transfer, Loading, Unloading and Washout
2. Vehicle Washing and Rinsing
3. Vehicle Tracking
4. Grading and Soils Management



## Best Management Practices (BMP)

### Good Housekeeping / Containment

GH

#### ***Materials Handling, Transfer, Loading, Unloading and Washout (including Liquid Calcium Spreader Truck)***

Prevent or reduce the discharge of pollutants to stormwater from outdoor loading/ unloading and storage of materials by enclosing or covering materials, installing secondary containment, and preventing stormwater run-on.

The loading/unloading of materials usually takes place outside. Loading or unloading of materials occurs in two ways: materials in containers or direct liquid transfer.

- Materials spilled,
- leaked or lost during loading/unloading

The most important factors in preventing these constituents from entering stormwater is:

- Limit exposure of material to rainfall.
- Prevent stormwater run-on.
- Check equipment regularly for leaks.
- Contain spills during transfer operations.

Loading or unloading of liquids should occur under cover/barn so that any spills can be more easily cleaned up.

#### ***Material Delivery Practices***

- Park tank trucks or delivery vehicles so that spills or leaks can be contained with **drip pans** under hoses or other secondary containment.
- **Cover** the loading/unloading docks to reduce exposure of materials to rain.
- Design loading/unloading area to prevent **stormwater run-on**:
  - With diversion grading, berming or swales, and
  - Position roof downspouts to direct stormwater away from loading/unloading areas.
- Look for **dust or fumes** during loading or unloading operations.
- When loading and unloading tank trucks to above and below ground storage tanks, the following procedures should be used:
  - The area where the transfer takes place should be paved.
  - Transfer area should be designed to prevent run-on of stormwater from adjacent areas. Sloping the pad and using a curb, like a speed bump, around the uphill side of the transfer area should reduce run-on.
  - Transfer area should be designed to prevent runoff of spilled liquids from the area. Sloping the area to a drain should prevent runoff. The drain should be connected to a **dead-end sump** or to the sanitary sewer if given approval by the local sewer authority. A positive control valve should be installed on the drain.

#### ***Material Storage Areas and Practices (including bulk material piles)***

- Designate storage areas at the project site with **conspicuous signs** and employee training.
- **Store materials indoors** within existing structures or sheds when available.
- Have proper storage instructions posted at all times in an open and conspicuous location.
- Locate the storage area **away from the storm drain system** and watercourses.
- Prevent spills or leakage of liquid materials from contaminating soil or soaking into the ground by placing storage areas on **impervious surfaces**.
- Provide **curbs or dikes** around the perimeter of material storage areas to prevent run-on from adjacent areas as well as runoff of stormwater from the material storage areas.
- Keep ample supply of appropriate **spill clean up material** near storage areas.



## Best Management Practices (BMP)

### Good Housekeeping / Containment

GH

#### ***Deicing Equipment (Salt and Liquid Calcium Spreader Trucks)***

- Liquid calcium spreader trucks with excess materials should only empty their contents back into the liquid calcium holding tank. Excess materials should not be pumped into ditches, waterways or any other locations that may result in the eventual release of the material off-site.
- Salt spreader trucks with excess material should only empty their contents back into the salt storage bin/shed/dome/pile. Excess materials should not be placed into ditches, waterways or any other locations that may result in the eventual release of the material off-site.
- Strict procedures described above for materials transfer should also be followed.

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#### ***Vehicle Cleaning (Washing and Rinsing)***

Prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning by washing in designated, contained areas only and eliminating discharges to the storm drain by infiltrating or recycling the wash water.

- For on-site washing (with soap), use designated, covered areas equipped with sanitary sewer facilities to prevent wash water entering stormwater infrastructure, creeks, rivers, and other water bodies
- If on-site covered areas are unavailable, rinse (no soap used) areas must be situated so that water flows are collected into a BMPs for subsequent "treatment". The **outside rinsing area** shall have the following characteristics:
  - Located away from storm drain inlets, drainage facilities, or watercourses;
  - Paved with concrete or asphalt, or stabilized with an aggregate base;
  - Configured wash area with a sump to allow collection and disposal of wash water;
  - Discharge wash water (with soap) to a sanitary or process waste sewer (where permitted), or to a dead end sump. **Wash waters shall not be discharged to storm drains or watercourses.**
- DO NOT use solvents to clean vehicles/equipment on site.
- The local sewer / Publicly Owned Treatment Works (POTW) authority may require pretreatment and monitoring of wash water discharges to the sanitary sewer and should be consulted first.

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#### ***Vehicle Tracking***

Reducing or eliminating the tracking of sediment off-site may be achieved by using a stabilized access way for vehicles. This is not expected at all facility entrances/exits, but in areas where trucks may be traveling over exposed soil, such as an area used for bulk soil storage or on-site grading.

- Reducing trackout of sediments and other pollutants onto paved roads helps prevent deposition of sediments into local storm drains and production of airborne dust. A stabilized access way is a **pad of stone aggregate**, that may be enhanced with an **underlain filter cloth**. Limiting Vehicle Tracking significantly reduces the amount of sediment (dust, mud) tracked off-site.
- A stabilized facility access way should be used at **unpaved areas** where sediment tracking occurs from the facility onto paved or public roads.



## Best Management Practices (BMP)

### Good Housekeeping / Containment

GH

- The access way must be properly graded to prevent runoff from leaving the area. Sediment barriers, such as swales with check dams, must be provided to prevent sediments from entering into the stormwater sewer system, ditch, or waterway.
- Stones should be 2-3 inch (5.1-7.6 cm) crushed, washed, and well graded rock to at least a 6-inch (15.2) depth.
- Length should be 100-foot (30.5 m) minimum, and 20-foot (6.1 m) minimum width.
- If necessary, install tire-washing station (water spicket and hose) that staff can use to remove mud and dirt from vehicle tires and undercarriages to prevent these materials from being deposited onto off site.
  - If a wash rack is necessary, it shall be designed for anticipated traffic loads and drain to a detention pond or swale.
  - If a swale is required, then it shall be of sufficient grade, width, and depth to carry the wash runoff.
  - The swale shall convey the runoff from the wash area to a sediment-trapping device.
- Require that all employees, drivers, subcontractors, and others that leave the area with mud-caked tires and/or undercarriages use the stabilized access way.

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#### **Grading and Soils Management**

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Work on-site that includes extensive grading and soil exposure shall be conducted in areas serviced by appropriate BMPs. In areas with existing BMPs, flows from the exposed work areas shall be diverted to the BMPs and away from off site waterways to reduce the amount of sediment discharged by the site. If BMPs are unavailable, temporary BMPs shall be established to minimize the amount of sediment release as a result of the facility activities.

- To the maximum extent practicable, work conducted on-site that results in the exposure of soils shall be conducted in areas serviced by existing BMPs
- If existing BMPs are unavailable, appropriate BMPs shall be installed to control the amount of erosion from the exposed soils and the sediment leaving the work area. Appropriate measures may include, but are not limited to:
  - Silt fence
  - Sediment traps
  - Swale (grassed channel)
- For all on-site work, the extent of site disturbance shall be limited to the maximum extent practicable. Methods for limiting site disturbance may include, but are not limited to:
  - Preservation of existing vegetation
  - Protect exposed topsoil with stabilization techniques such as mulching, nets & blankets, plastic sheeting, and/or temporary seeding.

See “*Stormwater Best Management Practices (BMP) ToolKit*” for list of reference and guidance materials that may be useful in preparing and implementing effective BMPs.





## Best Management Practices (BMP)

### Good Housekeeping / Containment

GH

#### Inspection and Maintenance Checklist – Good Housekeeping

Completed

Or

Satisfactory

- ☐ Have all employees and new hires been trained in the site's application of Good Housekeeping practices?
- ☐ Are there dirt on roadways or sediment accumulated in drainage ditches that may indicate that vehicles tracking are tracking mud and sediment off-site or to areas onsite not served by a BMP?
- ☐ Are there black stains on roadways, parking lots or in drainage ditches that may indicate that there is oil and grease being transported to an area not served by a BMP?
- ☐ Are there white stains on roadways, parking lots or in drainage ditches that may indicate that there is salt, brine or liquid calcium is being transported to an area not served by a BMP?
- ☐ Are the Spill Prevention Control and Countermeasures (SPCC) procedures being applied by all staff as necessary?
  - ☐ Have staff been trained in SPCC?
  - ☐ Has annual SPCC refresher training been performed?
- ☐ Are the Groundwater Pollution Prevention (GWPP) plans procedures being applied by all staff as necessary?
  - ☐ Have staff been trained in GWPP?
  - ☐ Has annual GWPP refresher training been performed?
- ☐ Are materials loading and unloading areas covered or secondary containment provided?
  - ☐ Are all containment valves, flaps, etc. closed?
  - ☐ Does the containment pit have clean stormwater that can be released?
  - ☐ Are there any sheens, stains or signs of corrosion? If yes, contact Facility Superintendent and Division of Environmental Analyses.
- ☐ Are there indications that the excess material from the liquid calcium spreader trucks has been emptied anywhere other than the liquid calcium storage tank?
- ☐ Are spill clean up kits and other materials complete and fully stocked?
- ☐ Check loading and unloading equipment regularly for leaks, including valves, pumps, flanges, and connections.



## Best Management Practices (BMP)

### Good Housekeeping / Containment

GH

#### Inspection and Maintenance Checklist – Good Housekeeping (cont.)

Completed  
Or  
Satisfactory

- ☐ Inspect bulk materials storage areas before and after rainfall events, and at least weekly during other times.
- ☐ When bulk materials (such as sand, gravel, soil, asphalt till, etc.) are brought on-site are they deposited in designated areas that are served by a stormwater BMP?
- ☐ Are all bulk material storage piles contained in their bins or areas protected with berm, dikes, or sediment control BMP?
- ☐ Is there any soil grading or storage of sand, gravel or soil in areas not served by a sediment BMP?
- ☐ Are there any materials (other than bulk storage piles) stored outside that should not?
- ☐ Does a vehicle tracking access way require top dressing with additional stone? (add gravel material when soil subgrade becomes visible or top is very muddy)
- ☐ Are there any signs or have there been any vehicles washed outside designated areas (that do not drain to a sanitary sewer)?





# Best Management Practices (BMP)

## Filter Strip and Buffer



FSB

A filter strip or buffer is a **grassed area** that treats sheet flow and is placed parallel to the contributing surface such as parking lot or roadway. They “treats” stormwater runoff by utilizing vegetation to slow the velocity of runoff allowing the removal of sediment and other pollutants through filtering and settling.

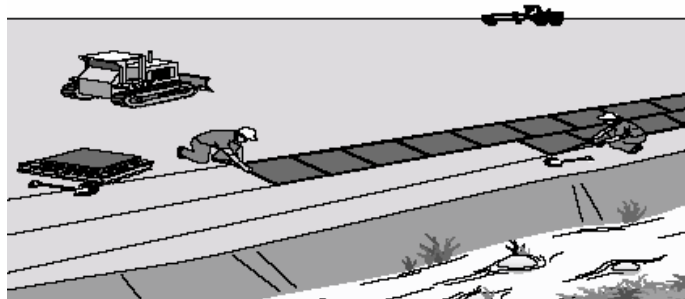


Figure: Filter Strip and Buffer

Source: Volume 4 Best Management Practices: Stormwater Management Manual, Metropolitan Government of Nashville and Davidson County March 2000.

Low	Medium	High
○	●	●
Material or Pollutant Removal Efficiency		
Sediment		●
Chlorides		○
Oil & Grease	●	
O & M Frequency		○
Inspection Frequency		○
Capital Cost		○
Maintenance Costs		○

General Description	
Applicability and Use	<ul style="list-style-type: none"> <li>Along roadways and parking lots</li> <li>Prior to discharge to swales</li> <li>Around bulk materials storage areas</li> <li>Does not receive concentrated (piped or channel) flow</li> </ul>
General Sizing Criteria	<ul style="list-style-type: none"> <li>Roadways and parking lots: 10- feet prefer at least 25-feet.</li> <li>Around bulk material storage: 30 to 50- feet</li> <li>Less than 2% slope</li> </ul>
Other Comments	<ul style="list-style-type: none"> <li>Grass should be maintained between 3 and 8-inches.</li> <li>Need to be mowed and maintained with good vegetation growth</li> <li>Should not receive significant vehicle traffic</li> </ul>

See “*Stormwater Best Management Practices (BMP) ToolKit*” for list of reference and guidance materials that may be useful in preparing and implementing effective filter strips and buffers.

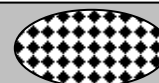
### Inspection and Maintenance Checklist – Filter Strips and Buffers

- ☐ Inspect at least quarterly (preferably before quarterly monitoring requirements) and after each extreme storm event for signs of erosion, vegetation loss, and channelization of the flow.
- ☐ Maintenance shall consist of mowing, weeding, and ensuring sufficient irrigation to sustain vegetation.
- ☐ Repair eroded or damaged areas as needed to sustain vegetation.
- ☐ Is the grass mowed when it reaches a height of 8 inches and mowed no shorter than 3 inches?
- ☐ Are there any sheens or stains? If yes, contact Facility Superintendent and Division of Environmental Analysis.
- ☐ Is the monitoring sump free and clear of trash and debris?



# Best Management Practices (BMP)

## Sediment Forebay / Trap



ST

Sediment trap is a small excavated or bermed area where runoff from a small tributary area is detained and sediment can settle. This management practice is likely to significantly reduce sediment and floatable materials.

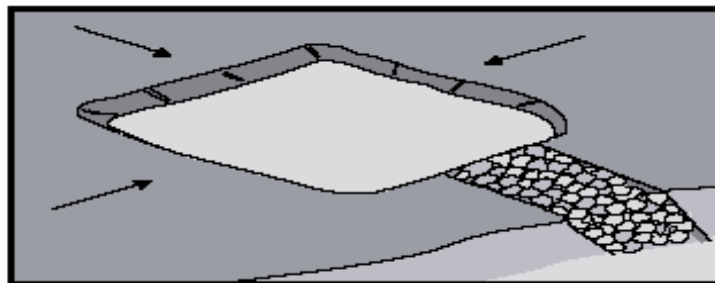


Figure: Sediment trap schematic

Source: Volume 4 Best Management Practices: Stormwater Management Manual, Metropolitan Government of Nashville and Davidson County March 2000.

Low	Medium	High
○	●	●
Material or Pollutant Removal Efficiency		
Sediment		●
Chlorides	●	
Oil & Grease	●	
O & M Frequency	●	
Inspection Frequency	●	
Capital Cost	●	
Maintenance Costs	●	

Site Characteristics and Limits	
Minimum Dimension	<ul style="list-style-type: none"> <li>Stand alone: 180 cu yd / acre of drainage area</li> <li>Pond Forebay: 10% of pond volume</li> </ul>
Land Requirement	<ul style="list-style-type: none"> <li>Trap area must be 2 to 5% of contributing drainage area for best settling results</li> <li>area less than 5 acres</li> </ul>
Uses	<ul style="list-style-type: none"> <li>Cold mix asphalt facilities</li> <li>Fleet maintenance</li> <li>Wash facilities</li> </ul>
Other Comments	<ul style="list-style-type: none"> <li>A fallback from a water quality detention pond when space is not available.</li> <li>Outlet structure usually rock filter or simple weir (not piped)</li> </ul>

### Applicability and Selection Criteria

- Most effectively used just upstream of a detention pond. This focuses maintenance, especially sediment removal on the smaller forebay/trap rather than on the larger detention pond.
- The sediment trap is applicable for drainage areas less than 5 acres.
- Used just downstream of a bulk materials storage pile or bin (sand, gravel, soil, etc.)
- Typical used for locations where sediment-laden runoff may enter a high traffic area, exit the site or enter a drainage system.
- Used in place of detention ponds, only when the contributing drainage area is divided into smaller subareas contributing to each trap or space limitations make using a pond impossible.
- Sediment traps are selected due to their removal efficiency, capital costs plus operation and maintenance costs. They are an alternative to larger detention ponds, but are less effective.
- A trap and pond are very similar. In essence, a pond is larger (and deeper) and must have an outlet structure passing through a dam-like embankment, while a trap is smaller (and shallow) and may have a much more simple outlet structure.



## Best Management Practices (BMP)



ST

### Sediment Forebay / Trap

#### Limitations

- Traps/forebays require more **frequent** but much easier **maintenance** (sediment removal) than ponds.
- If **upstream erosion** is not properly controlled, traps can be maintenance intensive with respect to sediment removal, nuisance odors, and insects (i.e., mosquitoes), etc.
- Traps/forebays require a slight differential elevation between inlets and outlets and thus, may be **limited by terrain**.
- Traps are only effective with a tributary area of up to **5 acres**.
- Traps can not be located in **live streams**.
- The traps only remove medium and large particles requiring **very strict good housekeeping** measures upstream.

#### General Design Criteria

- A shallow trap/forebay with large surface area performs better than a deep pond with the same volume. Design to minimize short-circuiting by including energy dissipaters on inlets, shape the pond with at least a 3:1 length to width ratio, and locate the inlets as far away from the outlet as possible. It should be noted that a **length to width ratio** of up to 7:1 is preferred.
- Do not locate on or near **steep slopes**.
- Embankment **freeboard** of at least 2 feet (0.61 m).
- **Side slopes** of at least 4:1 (H:V) (unless vertical retaining walls are used) for dedicated access to the basin bottom for maintenance vehicles.
- **Skimmers** – Facilities that have a potential source of oil and grease contamination should include a skimmer, or absorbent to prevent discharged from the facility and assist in the performance monitoring program.
- **Safety** must be a foremost consideration. This usually takes place in the grading, fencing, landscaping, pipe cover, grating and signage. The most important design feature affecting safety during operation is grading. The contours of the pond should be designed to eliminate “drop-offs”. In some cases, there is not sufficient room for grading of this type and the trap may require a perimeter fence.
- A **monitoring** station should be developed on the most downstream accessible point of the outlet structure (usually on the “dry” side of an embankment or at the outlet culvert). See Monitoring discussion below.

#### Volume Sizing

Water quality objectives direct that the **trap volume functioning alone** is selected to capture the first one-inch of runoff volume over the tributary area plus one-third volume for sediment storage. Example, if pond serves 1-acre then the volume should be 1-acre.inch or 3,630 ft<sup>3</sup> or 134yd<sup>3</sup> plus one third for sediment storage for a TOTAL volume of approximately **4,840 ft<sup>3</sup>** or **180 yd<sup>3</sup>**. If the facility is working as a forebay then should be about 10 to 25% of the total volume determined for the pond.

#### Outlet Structure Design

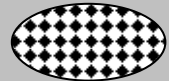
The outlet structure of the trap/forebay is important for dewatering purposes. Proper hydraulic design of the outlet is critical to achieving good performance. While more expensive and the same orifice (culvert) or v-notch weir outlet structures design process used in detention ponds can be used. However, the generally much more shallow and smaller forebay/trap can use the following for an outlet structure.

- a lateral sill with rooted wetland vegetation (forebay only)
- A triangular shaped filter dike or check dam (trap or forebay)



## Best Management Practices (BMP)

### Sediment Forebay / Trap



ST

- rock-filled gabions or retaining wall (trap or forebay)
- or a horizontal rock filter placed laterally across the exit/ entrance to pond (trap or forebay under three (3)- feet deep)
- A crushed stone outlet section of the embankment at the low point of the trap. This provides a non-erosive spillway outlet for flood flows and the bottom section provides a means of dewatering the trap between rainfall events.

Because the forebay/trap is much smaller than a pond it is assumed that the outlet structure is also designed to pass larger flood control storms. However, it should be noted that this also means that it be sturdy enough to withstand higher flow stress and erosive velocities. In most cases, this requires that any **stone based outlet structure** be backed by oversized rip rap or other structurally firm base.

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#### Operation and Maintenance

- **Check outlet** regularly for clogging and remove any debris.
- Check banks and bottom of surface basin for **erosion** and correct as necessary.
- **Remove sediment** when accumulation reaches 6-inches below lowest point of outlet structure, is 1/3 full, or if resuspension is observed or probable.
- Any vegetation needs to be **mowed, trimmed or harvested** as appropriate, grassy areas frequently mowed and repairs made to signage and any fencing.
- Maintenance crews must have **access** to the site for proper maintenance. Traps/forebays that are not designed with access for maintenance crews often become more of a nuisance than a beneficial part of a stormwater management program.

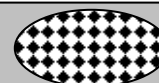
#### ***Sediment Removal***

- A primary function of stormwater quality traps/forebays is to collect sediments. The sediment accumulation rate is dependant on a number of factors including contributing area, grading and bulk materials storage activities upstream, etc. The sediment contents should be identified before it is removed and disposed off-site.
- Some sediment may contain contaminants of which requires special disposal procedures. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then KDOW should be consulted and their disposal recommendations followed. Some sediment collected may be innocuous (free of pollutants other than “clean” soil) and can be used as fill material, cover or land spreading on-site. It is important that this material not be placed in a way that will promote or allow resuspension in storm runoff. The sediment should not be placed within the high water level area of the pond, other BMP, creek, waterway, buffer, runoff conveyance device, or other infrastructure.



## Best Management Practices (BMP)

### Sediment Forebay / Trap

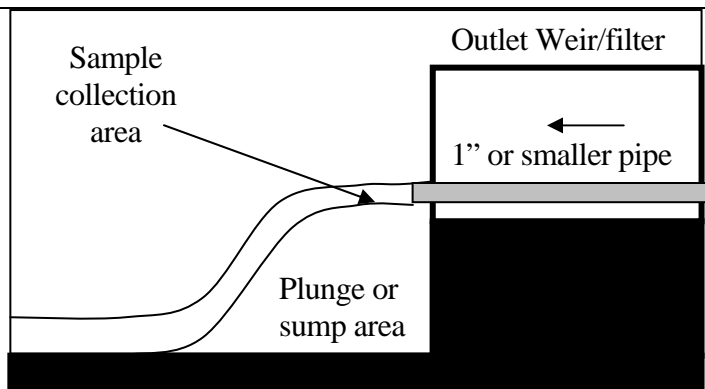


ST

#### Monitoring

The outlet structure should be designed/equipped with a sample collection sump/pit or plunge pool. The objective is to have location where water can be collected as it flows over a weir, sharp edge or other means so that the entire contents can be collected without adding or subtracting materials being transported on the structure bottom.

See “*Stormwater Best Management Practices (BMP) ToolKit*” for list of reference and guidance materials that may be useful in preparing and implementing effective BMPs.



#### Inspection and Maintenance Checklist – Sediment Trap / Forebay

Completed

Or

Satisfactory

- ☐ Inspect at least quarterly (preferably before quarterly monitoring requirements) and after each extreme storm event.
- ☐ Are the skimmer devices, and inlet and outlet structures free of trash and debris?
- ☐ Is(are) absorbent material(s) still located in the normal flow of discharge water?
- ☐ Does the oil skimmer or absorbent material need to be replaced?
- ☐ Remove sediments if 1/3 full or they are within 6-inches of an orifice plate or weir.
- ☐ Are there any areas of side slope erosion, sluffing or other stability problems?
- ☐ Is there any erosion at the outlet structure? If yes, stabilization is require to protect embankment.
- ☐ Are there weeds, cattails or other vegetation growing in the bottom?
- ☐ Are there any sheens, stains or signs of corrosion on the downstream / “dry side” of the pond outlet structure? If yes, contact Facility Superintendent and Division of Environmental Analysis.
- ☐ Is the monitoring sump free and clear of trash and debris?

### **Appendix 3. Facility Guide for Stormwater Sampling and Reporting**

# Kentucky Transportation Cabinet

## Facility

### Guidance Manual for

### K.P.D.E.S. Sampling, Monitoring and Reporting

for

### Storm Water Run-off

For discharges covered by the general KPDES Permit:

**KYG500000**

Prepared by:

The Division of Environmental Analysis  
Kentucky Transportation Cabinet

March 2005

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Storm Water Sampling Report/Chain-of-Custody Record

Weather Log

pH Meter calibration and measurement log



## I. Introduction

The Transportation Cabinet is responsible for building, operating and maintaining most of Kentucky's public roads and highways. To carry out this task, KYTC operates a system of maintenance, traffic and equipment facilities located throughout the state. Special environmental permits have been issued to these facilities that provide that water leaving the property is to be in compliance with Kentucky's clean water laws. These permits are known as the Kentucky Pollution Discharge Elimination System (KPDES) permits. They establish conditions which regulate nearly all storm water run-off from our facilities.

This guidance document addresses the tasks to be performed by personnel on site who will keep weather logs, collect samples and measure pH. This assignment is considered to be the most important step in the sequence of compliance actions required to be performed. If the recording of rain data and sampling is not accomplished correctly, nothing can be done to recreate the information needed to demonstrate a facility's permit compliance.

The personnel that are to make the on site observations and collect samples must:

- Maintain records of rainfall and sampling activities.
- Collect samples of the water for laboratory testing.
- Measure pH of the sample of each discharge.
- Make **and record** observations about conditions on the lot that may affect the quality of the discharges.
- Deliver samples to the laboratory in accordance with environmental coordinator instructions.
- Forward information to District Office Environmental Coordinator.
- Keep supplies on hand to support sampling activities.

## II. Preparation of the Sampling Points

The following steps are to be taken before the storm-sampling event to be properly prepared to collect the samples and data needed.

1. The District Office Environmental Coordinators should assist with establishing the sampling point(s).
2. The sampling location must be prepared to accommodate the sampling containers and be where the flow is somewhat turbulent and well mixed. Modifications to the site may be needed to prepare it so the sample containers can be properly filled. This has to be done **before** run-off can be sampled. The guidance for collecting a grab sample is to place the container in the flowing water and let it fill with water from just below the surface in the flow channel. Any solids disturbed by the sampling container during sampling should not enter with the sample being collected. The actual container that will be sent

## Kentucky Transportation Cabinet KPDES Sampling Guidance

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to the laboratory must be used for the sample collection, so the fill site must accommodate those containers.

3. Mark each sampling location with its ID when there are multiple discharge points to be sampled.
4. Rain gauges are to be installed at each permitted facility. Proper measurement of rainfall is important. It needs to be in a place that is convenient to the personnel making observations and representative of the rain falling at the facility. However, be sure to keep the gauge far enough away from buildings, trees, overhangs, equipment, walls and other obstructions, allow for an accurate measurement and acceptable data.

### III. Equipment

You will need the following equipment or supplies to collect and document the samples and transport them to the laboratory:

1. Weather log, Storm Water Run-off sampling forms, pH meter calibration, and measurement log.
2. Baking Soda to neutralize accidental acid spills.
3. Rain Gauge. The gauge needs to read to the one-tenth inch and be capable of measuring at least five inches of rainfall. There are two types that are acceptable. These are the Rain-Wise® tipping bucket electronic gauge or the Tru-Chek® rectangular plastic gauge.
4. pH Test Kit. The accepted methods for measuring pH require the use of a pH meter.
5. Storm water sample containers, one set, in a shipping cooler, for each discharge point:
  - Large mouth, glass sample container and H<sub>2</sub>SO<sub>4</sub> (sulfuric acid) preservative, color coded **yellow**—for testing oil and grease
  - One plastic container with no preservative—for testing suspended solids and chlorides
6. Provide a clean container for a sample to use to measure pH. This can be a paper cup or small (1/2 pint) canning jar with a screw on lid.
7. Refrigerator, and ice.

**Note: Sample containers and coolers, items 5 above, are to be obtained from the laboratory that analyzes the collected samples. District Coordinators should arrange for their delivery.**

### IV. Pre Sampling

The following steps are to be taken before the storm event or floor drain discharges occur.

1. Be sure you understand and can operate the pH measuring equipment.
2. Be sure you have all of the sampling equipment, containers, and reporting forms on hand. Check the sample kits from the laboratory. Be sure containers did not leak; are not broken, and that the labels are filled out correctly.
3. Preservative acids have been placed in the sample containers.

#### **Special safety notes for handling the acids:**

- **If acid gets on the skin, clothing or in the eyes, flush it with plenty of clean water.**
- **Get medical attention if needed.**
- **Clean up any spilled acid and neutralize it with baking soda.**

### V. Weather Logs

The weather log is a key part of the storm water sampling procedure. The log provides information needed about the rainfall for permit compliance. The basic information needed on the weather log for the storm water-sampling program is:

- The amount of rain that falls each workday or week-end/holiday period.
- The time the rain event started.
- The time that samples were taken.
- Notes about lot conditions and events that may affect the quality of the run off.

The observer is to do the following:

- Read the rain gauge once each day and record the amount of accumulated rain. For consistency, the gauge should be read the first thing each morning. If no rain has accumulated, verify that the gauge is empty and enter this observation in the daily weather log.
- For weekends (including extended weekends or holidays), taking the reading on the following first work day is sufficient. You do not need to record when it rained during week end or holiday periods.
- Rain gauge readings are to be taken the same time of every work day, even if it is raining.
- **Empty the rain gauge every time you take a reading.**
- When samples are actually taken for an appropriate storm event, record this in the "Remarks" column of the weather log. The time samples are taken is to be recorded on the weather log.

## Kentucky Transportation Cabinet KPDES Sampling Guidance

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A rain event that meets sampling criteria may not occur during the winter months of January through March. It is permissible to use snow melt run off when it does not rain in these months. For these events, the weather log must include a record of the amount of snow accumulation. The guidance on sampling criteria during winter is that, if there is no run-off from a rain storm, a sample should be taken when a snowfall of at least one inch accumulation melts and runs off.

### VI. Sampling Procedure

#### STORM WATER RUN-OFF SAMPLING

##### ***WHEN TO SAMPLE:***

Samples may be taken any time in the reporting period that meet the criteria for sampling. The criteria for sampling are:

- A new reporting period has begun and acceptable samples have not been collected.
- There is rain that will be at least 0.10 inch.
- Samples are to be collected at the time that is most representative of the total discharge. This means, after the initial flow has started, a sample should be taken. As a rule of thumb, samples should be collected between 30 minutes and an hour after run off has started from a rain event.
- Facilities that have retention ponds may have to adjust the time when a sample is taken. The ponds can delay the outflow from the beginning of a rainstorm. Ponds should be discharging when they are sampled. The sample should be taken during peak flows from the pond.

##### ***IF THE CONDITIONS FOR SAMPLING ARE MET:***

- Make a note of the time the rain for this storm started on your weather log.
- Get your sample containers ready for collection. Add the time and date to the sample jar labels before sampling. This is difficult to do after the labels are wet. Be sure the containers for each point have the proper discharge noted on them!

##### ***IT IS TIME TO GO OUT IN THE RAIN AND SAMPLE:***

To actually collect the samples remove the lid from the glass or plastic container and dip the jar in the mid-stream just below the surface. Let water run in slowly so as not to lose any preservative acid. Exercise care to keep excess solids out of the sample. Bottom sediment that is disturbed during sample collection must not mix with the sample or enter the sample container. **Note: do not use any kind of dipper or sampling container other than that provided by the laboratory and do not transfer water from one container to another.** Repeat the procedure for each container. After the containers are filled, screw lids on firmly. Be sure you can identify which containers were used for each sampling location. *Note that by being prepared, the amount of time in the weather is limited to merely collecting the samples for each discharge and returning to an inside work area.*

## Kentucky Transportation Cabinet KPDES Sampling Guidance

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### *AFTER SAMPLES HAVE BEEN COLLECTED:*

Once you have completed the outside work, there are a few things to do to prepare the sample for the laboratory and document the sampling:

- Be sure the labels have been completed with the information about sample collection and the **date and time** samples were taken is on the individual container.
- Measure and record the pH on the storm water field sampling form. Follow the procedures for measuring pH found in a separate section of this guide.
- Fill out a Storm Water Run-off Sampling report form (See appendix) . **Note your general observations about the conditions of the lot where water comes from for each sampling point. These observations are to include notes about various factors such as salt that is not covered, areas of soil recently disturbed, bare soil areas, oils, etc. that can be contributing to contamination of the run-off.**
- Place the samples on ice or in a refrigerator. The coolers and samples must be pre cooled before shipping. Over night in a refrigerator or with ice in the cooler is needed for this.
- The ice must be renewed before shipping. Be sure a fresh supply of ice is in the cooler before taking it to the shipping company.
- Ice needs to be in protective bags to keep melt water off of the labels, etc.
- Contact the environmental coordinator and review the sampling event. The sampled storm must be at least 0.10 inches of rainfall to be acceptable for the permit data. The initial part of storms are to be sampled (after 30 minutes and before an hour of run off). The coordinator will authorize sending samples to the laboratory. Samples should be sent to laboratory within three days or as instructed by the environmental coordinator.

## VII. Using the pH meter – Calibration and measuring pH

Directions for use of the Oakton pHTestr 2

New meters and meters that have been in storage for extended time:

- If necessary, remove plastic strips between batteries and contacts.
- To condition a new electrode, immerse electrode in electrode storage solution, buffer solution or tap water for at least 30 minutes before use. DO NOT use de-ionized water.

Calibration:

Calibration should be done every day that the Testr is used. A record of the calibration and test results is to be made on the pH meter calibration and measurement log and on the storm water field sampling form.

1. Prepare the calibration kit by filling the three containers with each of the three buffers, pH 4.01, pH 7.00 and pH 10.01.

## Kentucky Transportation Cabinet KPDES Sampling Guidance

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2. Switch the unit on (ON/OFF button)
3. Dip the electrode ½” to 1” into the first buffer. The meter can be calibrated in any order of pH buffer.
4. Press CAL button to enter calibrate mode. ‘CA’ flashes on the display. Then, a pH value close to the buffer value will flash repeatedly.
5. After at least 30 seconds (about 30 flashes) press the HOLD/CON button to confirm calibration. The display will show ‘CO’ and then switch to the buffer value reading.
6. Write this reading on the pH meter calibration log.
7. Rinse the meter in distilled water.
8. Repeat steps 3 through 7 for the other buffers.
9. The calibration pH for each buffer is to be within +/- 0.1 pH of the buffer being used to calibrate the meter. If the calibration pH is more than 4.1, 7.1 or 10.1 or is less than 5.9, 6.9 or 9.9, repeat the calibration process. Meters that are stored for long periods may take several calibrations to be within these limits. If a meter does not calibrate within the +/- 0.1 pH, note this on the calibration log and on the sample form. Meters that fail need to be replaced. The District Environmental Coordinator can accomplish this.
10. The meter is ready to measure pH of the sample after it calibrates within +/- 0.1 pH of each standard.
11. Rinse the electrode in distilled water before measuring the pH of the storm run off water sample.

Calibration Troubleshooting, some common mistakes:

- Failure to press the HOLD/CON button to confirm calibration (step 5 above).
- Pressing the CAL button will resume measuring mode but will not enter the calibration value. Be sure to press the HOLD/CON button as part of the calibration sequence.
- Not enough sampling time – The Testr needs 30 seconds or more time in the sample to reach a stable calibration point. Wait at least 30 seconds before pressing the HOLD/CON button.
- Failure to re-hydrate the electrode – A dry electrode will give fluctuating readings, causing errors – moisten the electrode by soaking it in pH 4.01 buffer for 5 minutes.
- Poor buffer solution – replace the solution with new buffer. Buffer solutions have an expiration date.
- Accepting calibrations that are outside of allowable standards of +/- 0.1 pH. Meters need to be re-calibrated until they are in standard or it is decided they will not calibrate.

PH Testing:

12. Remove the cap from the electrode. Switch the unit on (ON/OFF button).
13. Dip the electrode ½” to 1” into the sample test solution. Stir once and let the reading stabilize.
14. Note the pH or press the HOLD/CON button to freeze the reading. After the reading is recorded, pressing the HOLD/CON button again releases the meter to make additional measurements.
15. Press the ON/OFF button to turn off the meter. The meter will automatically shut off after 8.5 minutes with no activity.

## Kentucky Transportation Cabinet KPDES Sampling Guidance

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### Instrument maintenance:

16. Rinse the electrode with tap water before putting it into storage.
17. Keep a small piece of paper or sponge in the electrode cap – moistened with clean water – and close cap over the electrode.
18. Periodic soaks in warm pH 4 buffer will remove contaminants.
19. Upon reactivation, the dry probe can be remoisten by letting is set in pH 4 buffer for a period of 5 minutes.

### Clean up and Storage

The calibration buffers may be kept for use again in the calibration kit. Just close the containers with the caps provided.

If the sample had visible oil in it, the whole kit may need special cleaning. Contact the environmental coordinator for further guidance if the meter is contaminated or does not work.

20. The probe must be kept moist. A small piece of paper towel placed in the protective cap and dampened with clean water will accomplish this. **Be careful. The glass probe is delicate and too much towel can cause the glass to break.** Check the meter once each month and add clean water to keep it moist.
21. Replacement batteries, buffer solutions and meter probes should be obtained from the environmental coordinators.

## VIII. Delivering Samples to the Laboratory

There are a few requirements to follow to ensure the integrity of the samples are maintained:

- Samples must be cooled before shipping. Put them in a refrigerator over night or put ice in the cooler over night before shipping.
- There must be a record that identifies the sequence of persons responsible for the samples from the time they were collected until they are relinquished at the laboratory. This record is called a "chain-of-custody". The sampling report form was also designed to serve as this record. **The original form must go with the samples to the laboratory.** Each KYTC person who is responsible for the transport of the samples is to sign the form in the order of their acceptance of the samples. A laboratory representative will sign the form signifying receipt of the samples.

Samples may be transported to the laboratory using a delivery service like the post office or UPS. When such a service is used, shipping papers will suffice for record of delivery to the laboratory.

### **IX. Records**

The official records for this program may be maintained at the District Office. They must be retained for three years. The records that are to be maintained at the facility are:

- A copy of the KPDES Permit
- A copy of the BMP Plan
- The weather logs
- A copy of the sampling field sheet
- The pH Meter Calibration and measurement log.

Records maintained at the district office will include:

- Laboratory Results
- Discharge Monitoring Reports
- Correspondence

If the Division of Water asks to see official records at the facility, we have 48 hours to have them there.

In addition to the records for KPDES, records for your ground water protection plans must be maintained. These records include:

- Your Ground Water Protection Plan GWPP.
- Records that show employees have been trained about the GWPP.
- Records that show inspections conducted for compliance with the GWPP

The GWPP records are to be retained for six years. The plans are to be re-certified every three years.



# KyTC KPDES Storm Water Sampling Report/Chain-of-Custody Record

District\_\_\_\_\_ Facility\_\_\_\_\_ KPDES No.\_\_\_\_\_

## Sampling Record

Date samples were taken: \_\_\_\_\_

Discharge:	SWD-001	SWD-002	SWD-003	SWD-004
Time sample collected				
pH reading				

## Measure pH within 2 hours of collecting samples!

Person who collected samples: \_\_\_\_\_

pH Meter Calibration Reading pH 4.0 \_\_\_\_\_, pH 7.0 \_\_\_\_\_, pH 10.0 \_\_\_\_\_

Time pH Meter Calibrated\_\_\_\_\_ (am/pm) pH Measured by \_\_\_\_\_

Time pH Measured \_\_\_\_\_ (am/pm)

## Storm Data

Amount of precipitation in **24 hours**: \_\_\_\_\_ inches of ☐ rain or ☐ snow.

Date and time rain started for the storm being sampled \_\_\_\_\_ .

Observations about the lot or sampling \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Superintendents's signature: \_\_\_\_\_

## Sample Custody Information

Relinquished by	Date	Received by	Date
	Time		Time
Relinquished by	Date	Received by	Date
	Time		Time
Relinquished by	Date	Received by	Date
	Time		Time

Refresh ice in cooler before relinquishing to a delivery service. Use next day delivery.

This form is to be retained for a period of three (3) years. It is to be kept with the KPDES permit records.

This form was last revised April 2003.

# KyTC KPDES Permit

## Weather Log

Month\_\_\_\_\_ Year\_\_\_\_\_

**District**

**Facility**

**KPDES Permit No.**

Day	Rain information		Empty gauge each time it is read. Record when samples are taken. Note anything that may affect the discharge. <b>New month?, check the pH meter and re-moisten the cap.</b>
	Reading	Time	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			

This form is to be retained for a period of three (3) years. It is to be kept with the KPDES permit records.  
This form was last revised April 2003.

**KyTC – KPDES Permit**  
**pH Meter calibration and measurement log**

**Facility:****Lot Number:****KPDES Permit Number:**[illegible]

This form is to be retained for a period of three (3) years. It is to be kept with the KPDES permit records. This form was last revised April 2003.

## **INSTRUCTIONS FOR COMPLETING STORM WATER RUN-OFF SAMPLING REPORT**

This form is to be used to record the information about the collection of samples of storm water run off for compliance with KPDES permits. Samples are to be taken once each three months. This form is to be completed and sent with the samples to the laboratory.

Enter the District, Facility and KPDES Permit number.

Enter the date that samples were taken.

Enter the time each sample is collected.

Calibrate the pH meter and measure pH on each sample. PH must be measured within two hours after a sample is collected. Enter the calibration pHs on the form with the time the meter was calibrated. Enter the pH measured for each sample in the table.

The name of person who took the samples is to be recorded.

The name of the person who measures pH is to be recorded even if this is the same person who took the samples!

Observations are to include the conditions of the area that run-off comes from for each discharge sampled. This is to include notes about exposed salt, oils and exposed materials that can generate contaminates. Any remarks about the samples should be made when sampling conditions are not normal.

Superintendent should check the information on this form and sign it. This information will be used to report conditions on the lot and corrective measures taken, if any.

Be sure samples are pre-cooled. Putting them in the refrigerator over night with the cooler should do this. If a refrigerator is not available put the samples on ice over night. Be sure a fresh amount of ice is in the shipping cooler at the time it is given to the transport to the laboratory. Use next day delivery.

The first relinquished by entry must be by the person who took the samples! Sign in the relinquished by box, then enter the date and time.

The person taking the sample must sign in the received by box when the samples are accepted.

The Transportation Cabinet employees who transport the samples to the laboratory, courier, or shipping company are to sign this section in the order of their responsibility for the samples. The date and time each person relinquishes and accepts the samples are to be entered on the form.

**NOTE:** Samples should be kept cool after collection and logging. They should be sent to the laboratory within 3 days after sampling.

## **Instructions for Weather Log**

A weather log is a key part of your storm water sampling procedure. From the log you will provide information needed by the person that will fill out the Discharge Monitoring Report (DMR). The basic information needed on the weather log for the storm water sampling program is:

- The amount of rain that falls each day or each weekend period.
- For storms that are sampled, note the date and time the rain started.
- Note the time when samples are taken.
- Observations that relate to the quality of the lot run off.

Keeping the log will require that the observer do the following:

- Read the rain gauge just once each day and record the amount of accumulated rain. For consistency, the gauge should be read the first thing each morning. If no rain has accumulated, verify that the gauge is empty and enter this observation in the daily weather log.
- For weekends (including extended weekends or holidays), taking the reading on the following first work day is sufficient.
- Rain gauge readings are to be taken even while it is raining.
- **Empty the rain gauge every time you take a reading.**
- When samples are actually taken for an appropriate storm event, record this in the "Remarks" column.

Include a record of snow accumulation. The guidance on sampling criteria during winter is that, if there is no run-off from a rain storm, the sample should be taken when a snowfall of at least one inch accumulation melts and runs off. Rain gauges should be protected from freezing in the winter.

## **INSTRUCTIONS FOR pH METER CALIBRATION**

### **Calibration:**

Calibration should be done every day that the Testr is used. A record of the calibration and test results is to be made on the pH meter calibration and measurement log and on the storm water field sampling form.

1. Prepare the calibration kit by filling the three containers with each of the three buffers, pH 4.01, pH 7.00 and pH 10.01.
2. Switch the unit on (ON/OFF button)
3. Dip the electrode ½" to 1" into the first buffer. The meter can be calibrated in any order of pH buffer.
4. Press CAL button to enter calibrate mode. 'CA' flashes on the display. Then, a pH value close to the buffer value will flash repeatedly.
5. After at least 30 seconds (about 30 flashes) press the HOLD/CON button to confirm calibration. The display will show 'CO' and then switch to the buffer value reading.
6. Write this reading on the pH meter calibration log.
7. Rinse the meter in distilled water.
8. Repeat steps 3 through 7 for the other buffers.
9. The calibration pH for each buffer is to be within +/- 0.1 pH of the buffer being used to calibrate the meter. If the calibration pH is more than 4.1, 7.1 or 10.1 or is less than 5.9, 6.9 or 9.9, repeat the calibration process. Meters that are stored for long periods may take several calibrations to be within these limits. If a meter does not calibrate within the +/- 0.1 pH, note this on the calibration log and on the sample form. Meters that fail need to be replaced. The District Environmental Coordinator can accomplish this.
10. The meter is ready to measure pH of the sample after it calibrates within +/- 0.1 pH of each standard.
11. Rinse the electrode in distilled water before measuring the pH of the storm run off water sample.

### **PH Testing:**

12. Remove the cap from the electrode. Switch the unit on (ON/OFF button).
13. Dip the electrode ½" to 1" into the sample test solution. Stir once and let the reading stabilize.
14. Note the pH or press the HOLD/CON button to freeze the reading. After the reading is recorded, pressing the HOLD/CON button again releases the meter to make additional measurements.
15. Press the ON/OFF button to turn off the meter. The meter will automatically shut off after 8.5 minutes with no activity.

### **Instrument maintenance:**

16. Rinse the electrode with tap water before putting it into storage.
17. Keep a small piece of paper or sponge in the electrode cap – moistened with clean water – and close cap over the electrode.
18. Periodic soaks in warm pH 4 buffer will remove contaminants.
19. Upon reactivation, the dry probe can be remoisten by letting it set in pH 4 buffer for a period of 5 minutes.
20. The probe must be kept moist. A small piece of paper towel placed in the protective cap and dampened with clean water will accomplish this. **Be careful. The glass probe is delicate and too much towel can cause the glass to break.** Check the meter once each month and add clean water to keep it moist.
21. Replacement batteries, buffer solutions and meter probes should be obtained from the district environmental coordinators.

## **Appendix 4. Ground Water Protection Plan**

# PREPARING A GROUNDWATER PROTECTION PLAN

Revised April 2004

This guidance document is based on 401 KAR 5:037, Section 3(3) (a) through (g).

The activities that require the development and implementation of a Groundwater Protection Plan (GPP) are listed in Section 2, pages 4-6, of the regulation. Read this section thoroughly and note any of the listed activities that are or will be conducted at your site. You will want to read Section 2(3) and 2(4) to determine whether any of your activities may be excluded from the GPP requirement.

All the activities conducted at your site that require a GPP must be included in one GPP. Cabinet-written generic groundwater protection plans are available from the Groundwater Branch or may be downloaded from the Groundwater Branch web site for the following activities:

1. On-site residential septic system
2. Domestic water well
3. Monitoring well
4. Water well driller
5. Home heating oil

Go to <http://water.ky.gov/gw/gwprotection/gwplans>. Click on Generic GPPs in the left-hand side bar. Fact sheets and mini-guidances are also listed in the left-hand side bar. The regulation and guidance may be accessed by clicking on the underlined words in the information on the right-hand side. If your facility operates an onsite septic system, water well, or monitoring well, you must include them in your GPP. To adapt the practices in the generic GPP to your particular GPP, contact Pat Keefe, Permit Review Section, 502/564-6120 for instructions.

## SITE SPECIFIC VS GENERIC GPPS

The Groundwater Branch STRONGLY ADVISES that site specific GPPs be developed, even when there are numerous facilities operating under one corporate name.

### Site Specific GPPs

- are tailored to the site for which they are developed.
- are not required to be submitted to the Groundwater Branch for review, unless called in by a DEP inspector or the Groundwater Branch, or as a requirement in an Agreed Order.

### Generic GPPs

- must be approved by the NREPC Cabinet prior to start up of the activity.
- must be public noticed in two publications of widespread distribution.
- must undergo a 30 day public comment period following public notification.



## **USING THE GUIDANCE**

### **Follow the Guidance Format.**

Follow the format provided in the guidance to develop your GPP. Using this format will assure that most, if not all, of the information the Groundwater Branch deems necessary for adequate review is included. It also organizes the information so that any member of the general public who asks to read your plan can follow it without needing additional explanation.

### **Use all Headings and Subheadings as stated in the Guidance.**

Do not make up your own headings or subheadings. Use the headings and subheadings in the order provided in the guidance. Do not leave out headings.

### **Provide all Information requested in the Guidance, where applicable.**

Be sure that you have provided the information requested. The review process is delayed when necessary information has been omitted.

### **Do not reference SPCC or KPDES Best Management Practices (BMPs) Plans.**

The GPP cannot contain broad referrals to SPCC or KPDES Stormwater BMP Plans. However, the practices in those plans that are protective of groundwater may be used in the GPP. See Section C of this guidance, 2<sup>nd</sup> bullet, page 4.

There are three special conditions that must be met in order to incorporate a program by reference. They are listed in Section C in this guidance.

The GPP must stand alone. The GPP may be a separate section or chapter in other BMP plans, but it must contain all the information required for a GPP. It cannot be included in bits and pieces throughout another BMP plan.

## **WHEN YOU HAVE COMPLETED THE GPP.....**

When you have completed your plan, review the draft to be sure that the GPP has addressed **all** the activities occurring at your site that are covered by the Groundwater Protection Regulation and that you have provided **all** the information, where applicable, for each section.

### **Implement your GPP!**

To be in compliance with 401 KAR 5:037 the GPP must be implemented **immediately** following development. This applies to **all** GPPs, even when a GPP is submitted to the Groundwater Branch for review. Implementation is not dependent upon Groundwater Branch approval of the plan. If your GPP is in review, continue to implement the practices in the submitted GPP. If changes are required, then the new practices should be implemented.

### **Submitting the GPP**

Submittal of a site specific GPP for review by the Groundwater Branch is optional unless:

1. required as part of an Agreed Order.
2. stated by a DEP inspector as a requirement in a Notice of Violation.
3. called in by letter by the Groundwater Branch.

To submit a GPP for review and approval, send one (1) copy of the GPP to Groundwater Branch, Kentucky Division of Water, 14 Reilly Road, Frankfort KY 40601. You will receive a letter stating that the Groundwater Branch has received your plan.

Your initial GPP submittal and any further drafts **will not** be returned. Be sure you keep a copy of each draft so that required changes can be made. The approved draft will be retained in the Groundwater Branch files. You will receive a letter stating the GPP has been approved.

It is not necessary to include the Groundwater Protection Regulation or this guidance document with the GPP when submitting it to the Groundwater Branch for review.

If you have any questions, please contact the Permit Review Section, Groundwater Branch, Kentucky Division of Water, 502/564-6120 and ask for Brenda Taylor or Pat Keefe.

#### Section A. GENERAL INFORMATION

1. Name and Address of Facility

- a. Facility Name
- b. Facility Address
- c. County
- d. Latitude and longitude in degrees, minutes, and seconds
- e. Mailing Address of Facility, if different from Facility Address

2. Person Developing GPP

- a. Name
- b. Address (business address, not home address unless business operates out of the home).
- c. Telephone Number (business phone, not home phone unless business operates out of the home).

3. Person Responsible for Implementing GPP

- a. Name
- b. Address (business address)
- c. Telephone Number

4. Location of Facility on Topographic Map

Only a United States Geological Survey topographic map will be accepted. Copy the 8 1/2 x 11 inch section of the map that contains the location of your facility. Do not enlarge or reduce the size of the map. If that section does not have the name of the topographic quadrangle, please write it on the map.

Mark your facility location with an X.

If you have internet access, topographic maps can be obtained from Topozone.com. Be sure to use the following: View Scale: 1:50,000; Coordinate Format: D/M/S; Coordinate Datum: WGS84/NAD83. If you have questions about navigating Topozone, or need to know other sources for topographic maps, contact Pat Keefe at (502) 564-6120 for directions.

5. Brief Description of Facility Operation.

Section B. ACTIVITIES THAT HAVE THE POTENTIAL TO POLLUTE GROUNDWATER

- In this section **list** all the activities that are conducted at your facility that require a GPP.
- List actual activities; do not quote the regulation.

**Say:** store diesel fuel in 1,000-gallon underground storage tank.

**Don't say:** "Storing, treating, disposing, or related handling of hazardous waste.....in tanks, drums, or other containers, or in piles."

- Include all activities at your site subject to the regulation, even if protective practices are already being implemented.

For example, if an aboveground storage tank (AST) has secondary containment, it still must be listed as an activity subject to 401 KAR 5:037.

- Give complete details about aboveground and underground tanks, including
  1. Number of each type of tank
  2. Capacity of each tank
  3. Identification of contents of each tank
- Details about practices to protect groundwater should be addressed in the next section. The following is a **sample** listing of activities.
  1. Store diesel fuel in 500-gallon aboveground storage tank (AST).
  2. Operate septic system (constructed wetland or sewage lagoon).
  3. Apply fertilizer and herbicides to maintain golf course.
  4. Store gasoline in 10,000-gallon underground storage tank (UST).

Section C. PRACTICES SELECTED TO PROTECT GROUNDWATER FROM POLLUTION

- For each activity listed in Section B, briefly describe the practice that will be used to protect groundwater. See Section 3(4)(a) through (p) and 5(a) through (e), pages 7-8 of 401 KAR 5:037 for the variety of types of practices that may be used. Note that (p) enables you to use other practices to protect groundwater that are not listed in Section 4.
- Practices given in SPCC or KPDES Best Management Plans may be used in the GPP provided that they are protective of groundwater. If you incorporate practices or information from those plans, you **MUST** state page numbers and sections in those plans in which those practices/information are found.
- The Best Management Practices (BMPs) or practices you select must be described. Simply stating that BMPs will be used is too vague. You must briefly describe the practice and tell how it will protect groundwater.
- Information about secondary containment for ASTs must include the kind of material (metal, concrete, asphalt, compacted clay or dirt) making up the floor and berms (sides) of the containment area.
- If there is no secondary containment for an AST, state so.

- If any of your activities listed in Section B are regulated under another program, you may incorporate by reference the groundwater protection practices you are required to use by that program.
- There are special conditions that must be met to incorporate by reference. Only programs that meet **all 3** of the following conditions may be incorporated by reference. These conditions are :
  1. management and design standards;
  2. mandatory monitoring for groundwater pollution or leak detection methods; and
  3. a specific corrective action plan. (401 KAR 537, Section 3(7)(a) and (b).
- USTs are regulated by the Underground Storage Tanks Program. The practices required by this program are to be incorporated by reference. To do so, follow exactly the format below.
  - a. Cite the UST regulation you're governed by.
  - b. State that this regulation specifically requires the following:
    1. management and design standards;
    2. mandatory monitoring for groundwater pollution or leak detection methods; and
    3. a specific corrective action plan.
  - c. The person responsible for implementing the plan must sign a statement that the facility is in compliance with the regulation cited in a above. Use the certification statement below:

I (typed name) certify that this facility is in compliance with  
(regulation).

Signature

Date

Use the format shown above for incorporating protective practices of other programs. Be sure to replace the UST regulation with that of the regulation of the program being incorporated by reference.

#### Section D. IMPLEMENTATION SCHEDULE

- The GPP must be implemented immediately. Implementation does NOT depend upon approval of the GPP.

Having a GPP, cabinet-approved or not, on file in an office somewhere does **NOT** keep a facility in compliance with 401 KAR 5:037. The GPP **must be** retained and implemented at the site for which it was developed.

- If all protective practices are already being implemented, state so. If protective equipment or devices (secondary containment structures, new ASTs with double walls and overfill alarms, etc.) must be ordered or built within budget constraints, list what is to be done and prospective date by which the protective practice will be completed.

Section E. EMPLOYEE TRAINING

- You are developing a Groundwater Protection Plan; therefore, training must focus on groundwater protection.
- Training must include educating the employees about the importance of groundwater protection.

Training must include all aspects of the GPP. Briefly describe topics to be covered in training the employees about groundwater protection practices.

- State the frequency of training sessions—initial and refresher sessions. Be specific, such as initially on hire and biannually or annually. “When needed” or “frequently” are too vague.

Section F. INSPECTION SCHEDULE

Inspections are conducted to insure that the practices selected to prevent groundwater pollution are being used and are properly functioning.

- State the frequency of the inspections (daily, monthly, quarterly, etc.) and what is to be inspected.
- Include an Inspection Checklist showing what is to be inspected, date, observations, actions taken, if any. This checklist is documentation that you are implementing the GPP.

Section G. CERTIFICATION STATEMENT

- The person who can make the managerial and/or financial decisions that are required to implement your plan should be the one signing the certification statement.
- Use the following certification statement verbatim.

I (typed name) certify that this Groundwater Protection Plan complies with the requirements of 401 KAR 5:037. I have read the terms of the plan and will implement its provisions.

Signature

Date

Section H. REVIEW LOCATION FOR GROUNDWATER PROTECTION PLAN

Section 4(7) of 401 KAR 5:037 provides for public inspection of Groundwater Protection Plans (See pages 11-12). Should you choose to designate the Groundwater Branch, Division of Water, 14 Reilly Road, Frankfort, or any site other than the facility location for public review, a copy of the recertified GPP must be sent to the Groundwater Branch or other site every three years, or whenever recertification is required by a change in activities being conducted.

## **Appendix 4. Facility Ground Water Protection Plan**

### **Instructions**

The Environmental Handbook contains all the elements needed to meet the Ground Water Protection Plan requirements that apply to KyTC Facilities. Since different activities may be carried out at each type of facility, the checklist below must be completed to identify which fact sheets apply, thus making this GWPP site-specific.

Make a copy of the blank form for future use and complete the information below. Use additional sheets as needed for notes. Sign and date the bottom and retain in the Environmental Handbook binder for your records. Complete plan again every 3 years or if conditions at the facility change. See PREPARING A GROUNDWATER PROTECTION PLAN, April 2004, or the most current update, to complete the required information. Retain this document, training and inspection records for six (6) years.

### **SECTION A. GENERAL INFORMATION**

**Facility Name**\_\_\_\_\_

**Facility Address**\_\_\_\_\_

**Mailing Address (if different from above)**\_\_\_\_\_

**County**\_\_\_\_\_ **Telephone Number**\_\_\_\_\_

**Name and Title of Person Completing This Form**\_\_\_\_\_

**Name and Title of Person Responsible for Implementing this GWPP**\_\_\_\_\_

**Latitude (degrees, minutes, seconds)** \_\_\_\_\_ **Longitude (degrees, minutes, seconds)** \_\_\_\_\_

**Attach a Topographic Map:** Only a United States Geological Survey topographic map will be accepted. Copy the 8 1/2 x 11 inch section of the map that contains the location of your facility. Do not enlarge or reduce the size of the map. If that section does not have the name of the topographic quadrangle, please write it on the map. Mark your facility location with an X.

If you have internet access, topographic maps can be obtained from Topozone.com. Be sure to use the following: View Scale: 1:50,000; Coordinate Format: D/M/S; Coordinate Datum: WGS84/NAD83. If you have questions about navigating Topozone, or need to know other sources for topographic maps, contact Pat Keefe at (502) 564-6120 for directions.

**Facility Description (e.g., Equipment, Highway Maintenance)** \_\_\_\_\_

## **SECTION B. ACTIVITIES THAT HAVE THE POTENTIAL TO POLLUTE GROUNDWATER**

<b>Fact Sheet</b>	<b>Fact Sheet Title</b>	<b>Applicable to Facility (Y/N)</b>	<b>All Fact Sheet Practices are Implemented (Y/N)</b>	<b>If all fact sheet practices are not currently being implemented, explain here, including anticipated completion date. Attach additional sheets as needed.</b>
2.1.1	Cleaning Asphalt Tools and Equipment			
2.1.2	Roadside Litter And Street Sweeping			
2.2.1	Vegetation Management			
2.2.2	Pesticide Delivery, Storage and Handling			
2.2.3	Fertilizer Storage and Application			
2.4.1	Storing and Loading Road Salts			

<b>Fact Sheet</b>	<b>Fact Sheet Title</b>	<b>Applicable to Facility (Y/N)</b>	<b>All Fact Sheet Practices are Implemented (Y/N)</b>	<b>If all fact sheet practices are not currently being implemented, explain here, including anticipated completion date. Attach additional sheets as needed.</b>
2.4.2	Generating Salt Brine			
2.4.3	Storing and Loading Liquid De-Icers			
2.4.4	Equipment Preparation and Maintenance (Snow & Ice)			
2.4.5	Plowing and Spreading Operations			
2.4.6	Post Storm and Post Season Cleanup			
3.1	Facilities Pride			
3.2	Floor Drains and Oil-Water Separators			
3.3	Hydraulic Lifts			
3.4	On-Site Sewage Disposal System (Septic System)			
3.5	Underground Storage Tanks (Complete Table 2 if applicable)			
3.6	Above Ground Storage Tanks (Complete Table 2 if applicable)			



<b>Fact Sheet</b>	<b>Fact Sheet Title</b>	<b>Applicable to Facility (Y/N)</b>	<b>All Fact Sheet Practices are Implemented (Y/N)</b>	<b>If all fact sheet practices are not currently being implemented, explain here, including anticipated completion date. Attach additional sheets as needed.</b>
3.7	Loading and Unloading Tank Trucks			
3.8	Handling Bulk Liquids			
3.9	Sand Blasting of Equipment			
3.10	Pressure Washers and Steam Cleaners			
3.11	Vehicle and Equipment Cleaning and Maintenance			
3.12	Parts Washers			
3.13	Used Oil Burners			
3.14	Ground Water Protection Plan Exclusions			
4.1	Solid Waste			
4.2	Hazardous Wastes			
4.4.3	Used Oil and Oil Filters			

**Table 2: Storage Tank Summary**

<b>Tank #</b>	<b>AST / UST</b>	<b>Capacity (Gallons)</b>	<b>Contents</b>	<b>Secondary Containment Materials (floor &amp; berm, or none)</b>

### **SECTION C. PRACTICES SELECTED TO PROTECT GROUNDWATER FROM POLLUTION**

Practices selected to protect ground water from pollution are provided in each fact sheet.

### **SECTION D. IMPLEMENTATION SCHEDULE**

Unless otherwise noted in the table above, all practices are being implemented.

### **SECTION E. EMPLOYEE TRAINING**

The employee training schedule is provided on each fact sheet and is summarized in Appendix 8. Training records are maintained in Appendix 8.

### **SECTION F. INSPECTION SCHEDULE**

An Inspection Checklist is provided each fact sheet and is summarized in Appendix 7. Inspection records are maintained in Appendix 7.

### **SECTION G. CERTIFICATION STATEMENT**

I \_\_\_\_\_ certify that this Groundwater Protection Plan complies with the requirements  
(Type or Print Name)

of 401 KAR 5:037. I have read the terms of the plan and will implement its provisions.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### **SECTION H. REVIEW LOCATION FOR GROUNDWATER PROTECTION PLAN**

This plan must be recertified every 3 years, or whenever a change of activity requires recertification.

## **Appendix 5. Septic System Management Plan**

## **HOME AEROBIC SYSTEM DO's AND DON'Ts**

from

**Small Flows, Fall, 1999  
Volume 13, No. 4**

### **DO:**

1. Maintain the contract service arrangement offered by the manufacturer after the initial two-year period has expired (unless your community offers its own management program). It is extremely important that aerobic systems receive regular maintenance at least every three months or six months at the maximum.
2. Keep your system accessible for inspections and pumping yet protected from unauthorized entrance. If access to your system is locked, make sure that you keep a key and that your service contractor has a key.
3. Call a service professional whenever you experience problems with your system, whenever the alarm is activated, or whenever there are any signs of system failure.
4. Keep detailed records about your aerobic system, including a map of where it is, general information such as model name, capacity, state license, date installed, contract service agreement, records of service visits, and maintenance performed.
5. Conserve water to avoid overloading the system. Be sure to repair any leaky faucets or toilets.
6. Divert other sources of water, like roof drains, house footing drains, and sump pumps away from the aerobic system.
7. Become familiar with how your own particular system operates and the way it looks, sounds, and smells when it is working correctly. This way, you may be able to identify problems before they become serious and alert your service provider to anything unusual.
8. Be sure to ask your service provider questions about how to know if your unit is malfunctioning.
9. Check to see if your unit is working properly after a power outage.

### **DON'T:**

1. Don't allow anyone to drive or park over any part of the system.
2. Don't make or allow unauthorized repairs to your aerobic system without obtaining the required health department permits.
3. Don't use your toilet as a trash can or poison your treatment system and the groundwater by pouring harmful chemicals and cleansers down the drain. Harsh chemicals can kill the beneficial bacteria present in the system that treat your wastewater.
4. Don't use a garbage disposal without checking with your local regulatory agency to make sure that your aerobic system can accommodate this additional waste. If you must use a garbage disposal, the system should be sized appropriately to accommodate the additional waste.
5. Don't attempt to clean or perform maintenance on any part of the aerobic system.

### **DO NOT FLUSH:**

- coffee grounds;
- dental floss;
- disposable diapers;
- kitty litter;
- sanitary napkins;
- tampons;
- cigarette butts;
- condoms;
- gauze bandages;
- fats, greases, or oils;
- paper towels; and
- panty hose.

### **NEVER FLUSH CHEMICALS SUCH AS:**

- paints,
- varnishes,
- thinners,
- photographic solutions,
- pesticides, and
- drain cleaners

## **Appendix 6. Facility Spill Prevention Countermeasures and Control Plan**

# Kentucky Transportation Cabinet Spill Prevention Control and Countermeasures Plan Template

## 112.1 Applicability and General Requirements

The Kentucky Transportation Cabinet (KTC) owns numerous facilities around the State. The \_\_\_\_\_ (District name and number) \_\_\_\_\_, is located at \_\_\_\_\_ (address) \_\_\_\_\_ in \_\_\_\_\_ (city) \_\_\_\_\_, Kentucky, \_\_\_\_\_ (zip code) \_\_\_\_\_. The site consists of \_\_\_\_\_-acres. Ongoing \_\_\_\_\_ activities \_\_\_\_\_ at \_\_\_\_\_ this facility \_\_\_\_\_ include \_\_\_\_\_ (describe what activities take place at this location, i.e. vehicle maintenance, sign shop, etc.) \_\_\_\_\_.

Because the facility has aboveground storage capacity in excess of 1,320 gallons of petroleum products, it is subject to the requirements of 40 CFR Part 112, which mandates the preparation and implementation of a Spill Prevention, Control, and Countermeasure (SPCC) Plan. The purpose of the SPCC Plan is to establish procedures, methods, and equipment to prevent and/or mitigate the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States. This plan has been prepared in accordance with sound engineering practices. A copy of the regulation is in Appendix 1.

## 112.3 Implementation

(A facility in operation on or before August 16, 2002 must implement this Plan as soon as possible, but not later than August 18, 2002. KTC should select a date for implementation of all measures included in the Plan.)

## 112.5 Amendment of SPCC PLAN

The SPCC plan must be amended when there is a change in facility design, construction, operation, or maintenance that materially affects the potential for a discharge as described in 40 CFR Part 112(b). Examples of changes that may require amendment of the plan include but are not limited to: commissioning or decommissioning containers; replacement, reconstruction or movement of containers; reconstruction, replacement, or installation of piping systems; construction or demolition that might alter secondary containment structures; changes of product or service; or revision of standard operation or maintenance procedures at a facility. Amendments must be made within six months and implementation as soon as possible but no later than six months following the preparation of the amendment.

A complete review and evaluation of the SPCC plan must be performed at least once every five years from the date of the last review. As a result of the review, the District will amend the plan within six months of the review to include more effective prevention and control technology if the technology has been field proven at the time of the review and will significantly reduce the likelihood of a discharge as described in 40 CFR Part 112(b). The District will document the review and evaluation, and sign a statement as to whether the District will amend the plan. Appendix 2 contains the statement to be signed after the five-year review.

District No. \_\_\_\_\_

District Name \_\_\_\_\_



### **112.7(a)(3) Facility Characteristics / Description of Facility**

(Describe the physical layout of the property, and include a facility diagram. Figure 1 can be the facility diagram. It can be hand drawn or CADD, doesn't matter. The diagram must show the location and contents of each container subject to the regulation. Can refer to a Table as referenced in the next section listing the products. Show underground storage tanks also. Containers subject to the regulation include mobile and stationary petroleum containers of 55-gallons and greater in size. For mobile containers, if they are stored in a certain area, mark that area on the diagram.)

#### **112.7(a)(3)(i) Above Ground Storage Tanks**

(A list of the storage capacity of the container, type of oil in each container, and secondary containment for each container. Can include the capacity of the secondary containment. This can be in a narrative form or a Table. An example Table 1 is attached.)

#### **112.7(a)(3)(ii) Discharge Prevention Measures**

(Encompasses secondary containment and other discharge prevention measures. Include procedures for routine handling of products, such as loading and unloading, VCR's, etc.)

##### *Example language:*

As described above, the aboveground storage tanks, drums and containers that are located in the building all have secondary containment, capable of containing 100% of the tank contents. Additionally, all tanks and drums are located in a corner of the building where no vehicle traffic takes place. There are no forklifts or tow motors currently in use within the building. Spill kits are present in the drum storage and handling areas, and in the event of a major spill, shall be used to contain and recover spilled materials.

Additionally, the stationary tanks located outside have secondary containment equal to 110% of the tank contents.

Monthly inspections will check the condition of the tanks, valves, and piping of each tank (include overhead pipes if any), along with the drainpipes.

Loading and unloading procedures have also been developed to prevent discharges from the transfer of petroleum products and are found in 112.7(h).

Mobile containers are usually parked     (describe location)     where there is     (describe secondary containment or drainage, etc)     to contain a spill from the vehicles.

#### **112.7(a)(3)(iii) Discharge Controls**

(Means spill controls and secondary containment. Describe secondary containment or drainage controls around the containers, and other structures, equipment, and procedures for the control of a discharge. Can also refer to Table 1 for information about secondary containment structures.)

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*Some example language to include: Procedures to control a discharge include shutting off the power supply to the tank, turning off any valves to the tank, and using booms or socks to contain the material.*

#### **112.7(a)(3)(iv) Countermeasures for Discovery, Notification, Response, and Cleanup**

(The facility's and contractor's capabilities for discharge discovery, response and cleanup. Includes personnel, equipment, and contractor.)

*Example language:*

District employees will be the first responders to all oil spills at the facility. Upon discovery of a discharge of oil the first step will be to stop the flow through closing of valves, turning off power, or using sorbent materials for the containment of the spill. Contacting other employees for assistance is also important. In all instances the District Operations Manager (this is the main person you want notified) should be notified.

The following is an inventory of spill response equipment, which is kept on site in the event of a spill or leak of petroleum products. (List materials on site such as oil dry, booms, socks, pads, spill kits, shovels, brooms, etc.). Spill cleanup equipment is located (where? in which buildings? and near what equipment?).

#### **112.7(a)(3)(v) Disposal of Recovered Material**

(Methods of disposal, may include recycling)

All spill material and debris will be managed in a manner that fully complies with applicable local, state, and federal laws regarding recycling or disposal of wastes.

#### **112.7(a)(3)(vi) Contact List**

(Who to contact in the event of a spill inside and outside KTC. Usually the same as contact list required per OSHA's emergency response plans with the addition of ERT, EPA, and a cleanup contractor. A table works well so it can be posted by all phones. An example is attached in Table 2. If a cleanup contractor is listed it should be one the facility has an agreement with for response that ensures availability of personnel and equipment within appropriate response times. Formal written agreements are not needed, but if one exists it must be addressed in the plan.)

*Example language:* A contact list for appropriate District personnel, contractors and government agencies is in Table 2. In the event of a spill or discharge as described in 112. 1(b), i.e. discharge oil in any quantity that may be harmful, or a gasoline or diesel fuel spill per the state of Kentucky regulations, the appropriate persons and agencies on the contact list shall be called.

#### **112.7(a)(4) Spill Reporting Information**

(Provide information and procedures for a person reporting a discharge to relate appropriate information. The example language below includes all required information. A form is a good

District No. \_\_\_\_\_

District Name \_\_\_\_\_

way to make sure all data is gathered. An example form is in Table 3, attached. The information below also includes when written reports are required.)

*Example language:*

To assist in the reporting of a discharge described in 112.1(b), the appropriated information shall be collected and recorded on the Spill Notification Data Sheet in Table 3. The information to be collected and written on the form should accurately describe the discharge occurrence. The District Manager or designee should fill out this form. Information to be recorded includes the exact address or location and phone number of the facility; the date and time of the discharge; the type of material discharged; estimates of the total quantity discharged; estimates of the quantity discharged as described in 112.1(b); the source of the discharge; a description of all affected media; the cause of the discharge; any damages or injuries caused by the discharge; actions being used to stop, remove, and mitigate the effects of the discharge; whether an evacuation may be needed; and the names of individuals and/or organizations who have also been contacted.

Whenever the facility has discharged more than 1000 gallons of oil in a single discharge as described in 112.1(b), or discharged more than 42 gallons of oil in each of two discharges occurring within any twelve month period the following information must be sent to EPA Region 4 within 60 days:

- Name of the facility;
- Name(s) of the owner or operator of the facility;
- Location of the facility;
- Maximum storage or handling capacity of the facility and normal daily throughput;
- The corrective actions and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements;
- An adequate description of the facility, including maps, flow diagrams, and topographical maps;
- The cause of such discharge as described in 112.1(b), including a failure analysis of system or subsystem in which the failure occurred;
- Additional preventive measures Rumpke has taken or contemplated to minimize the possibility of recurrence;

Such other information as the Regional Administrator may reasonably require pertinent to the Plan or discharge.

A copy of the report will also be sent to the KDEP, Division of Water, 14 Reilly Road, Frankfort, Kentucky 40601.

### **112.7(a)(5) Emergency Procedures**

(Procedures to be used when a discharge occurs. KTC may already have emergency response procedures to use here.)

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District Name \_\_\_\_\_

*Example language:*

In the event of a release of release of oil at the facility the District Manager shall be notified immediately and the following steps shall be taken:

I. Assessment of Hazard

1. Upon notification of a petroleum-related spill, the first responder will determine the hazard potential of a spill response by determining at least the following factors:
  - The substance spilled and its hazard potential
  - The amount of the spill and the extent of spreading
  - The source of the leakage/spill
2. If a spill is determined to be of such a magnitude that it cannot be safely and effectively controlled by facility personnel, then the District Manager shall promptly notify outside emergency response agencies to implement control and cleanup.

II. Securing Spill Response Equipment

1. Upon determining the hazard potential for the planned response action, the District Manager shall direct those who will respond to the spill to obtain the appropriate response equipment and personal protective equipment. A list of the spill response and personal protective equipment for this facility is provided in Section 112.7(a)(3)(iv).

III. Containment and Elimination of Spill Source

1. Upon obtaining the proper spill response tools and PPE, the spill responder(s) shall first attempt to contain the spill so as to prevent its entry into a storm sewer, a ditch, or any conveyance that eventually discharges to the waters of the United States.
2. At the same time as containment is being performed or as soon as possible after the containment, the spill responder(s) shall attempt to seal or otherwise stop the source of the spill. Common methods of eliminating a spill source include closing valves, leak stopping compound for pinhole leaks, drum overpacks, deactivating pumps, and diverting flow to another pathway as long as this pathway does not allow the spill to enter a navigable water course.

IV. Spill Cleanup

1. Once the spill is contained and the source eliminated, the spill responder(s) shall collect the spilled material by the appropriate manner and place the material into secure containers.
2. The area or surface in contact with the spilled material shall be decontaminated by an appropriate method that is permissible under local, state, and federal laws. The specific method used will depend upon the substance; the availability of permitted sewer discharge to a POTW, regulatory standards applicable to hazardous and toxic wastes, and other factors. The responder will select the appropriate decontamination method after determining the applicable facts and by conferring either with the regulators or an expert in the subject of spill response.

District No. \_\_\_\_\_

District Name \_\_\_\_\_

3. All spill material and debris will be managed in a manner that fully complies with applicable local, state, and federal laws regarding recycling or disposal of wastes. The preferred method is to recycle or reclaim materials from spills in an effort to minimize waste generation. Where this is not feasible or allowed, then disposal will be carried out in accordance with applicable local, state, or federal rules.

### **112.7(b) Fault Analysis**

(This is information concerning the potential consequences of equipment failure. The plan must only discuss potential failure situations that might result in a discharge, not any failure situation. Where experience dictates a reasonable potential for equipment failure, i.e. loading or unloading, tank overflow, rupture, leakage, include a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each type of major equipment failure. Experience means experience from the facility or the industry in general. Address a major equipment failure, one that could cause a discharge as described in 112.1(b) not minor possibilities. Spill pathways depends on the geographic characteristics of the facility and possibility for discharge. Focus on the obvious. Can refer to facility diagram for flow directions.)

### **112.7(c) Containment**

(Provide appropriate containment or diversionary structures or equipment to prevent a discharge as described in 112(b). Must be capable of containing oil, and constructed so the any discharge will not escape the containment system before cleanup occurs. At a minimum, must use one of the following dikes, berms, retaining walls, curbing, culverting, gutters or other drainage systems, weirs, booms or other barriers, spill diversion ponds, retention ponds or sorbent materials. If dikes, berms, retaining walls, or anything earthen is used it must be sufficiently impervious to prevent a discharge before cleanup occurs. The same is true for container floors or bottoms. Liners are not required. The plan must address how the secondary containment is designed to meet the requirements. A description of how earthen structures were made sufficiently impervious is required such as removing vegetation, type of material used, repairing excavations

If you determine based on space or geographic constraints, not financial, that secondary containment is not practicable, you must complete the next section. If you can provide secondary containment then skip the next section.)

### **112.7(d) Contingency Planning**

(This section requires the preparation of an Oil Spill Contingency Plan if the requirements of section 112.7(c), 112.7(h)(1), 112.8(c)(2), or 112.8(c)(11) cannot be met. If you determine it is not practicable to comply with the above list, you must clearly explain why the measure is not practicable, and conduct both periodic integrity testing of the containers and periodic integrity and leak testing of the valves and piping, and unless you have filed a response plan per 112.20, provide in your plan an oil spill contingency plan per 40 CFR Part 109 and a written commitment of manpower, equipment, and materials to expeditiously control and remove any quantity of oil discharged that may be harmful.)

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## **112.7(e) Inspections, Tests and Records**

(Develop inspection procedures, perform inspections. Keep records of inspections and tests for three years. Inspection form must be signed. Records of tests and inspections can be kept under usual and customary business practices will suffice. Inspections and tests mean schedules, evaluations, examinations, descriptions, inspections, and tests. Records can be kept electronically.)

### *Example language:*

At least once a month an inspection will be made to thoroughly inspect all storage tanks, drums, mobile containers, piping, and containment areas. An inspection form is provided in Appendix 3. If any discrepancies are noted, corrective actions will be taken immediately. Inspection records will be maintained for a minimum of three years.

The District has developed recordkeeping and internal reporting procedures to document the effective implementation of this SPCC Plan. These include procedures for recording and maintaining records of inspections, maintenance activities, employee training, and spills and leaks that have the potential to reach navigable waters.

Reports of spills and leaks that have the potential to reach navigable waters will be maintained with the facility records. Documents to be kept include the Spill Notification Data Sheet (Table 3) as well as a follow-up report describing the incident in detail, the effect on storm water quality, spill response actions taken, and recommended revisions to the plan to prevent a recurrence of the incident.

## **112.7(f) Personnel Training and Discharge Prevention Procedures**

(This section addresses the minimum training requirements. The example language addresses all aspects of the rule in a generic format.)

### *Example language:*

Training in discharge prevention is required of all oil handling personnel. Oil handling personnel include anyone who is involved in the use of and loading and unloading of oil products. At a minimum oil handling personnel shall be trained in the operation and maintenance of equipment to prevent oil discharges, discharge procedures protocols, applicable pollution control laws, rules and regulations, general facility operations, and the contents of the facility SPCC plan. New employees shall be trained if their job involved possible handling of oil. Any employee involved in the transfer of oil will be trained in loading and unloading procedures, response and cleanup, and notification procedures.

A person will be designated at each facility who is accountable for discharge prevention and who reports to facility/Cabinet management.

At least once a year the District will conduct discharge prevention briefings, or training sessions, to assure adequate understanding of the SPCC Plan. The annual briefing must also include known discharges or failures, malfunctions, and any recently developed precautionary measures. Training records will be retained for a minimum of three years.

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## 112.7(g) Security

(The requirements of this section are options provided equivalent environmental protection by some other means of spill prevention, control or countermeasure. You must state reason for nonconformance and describe in detail alternate methods and how you achieve equivalent environmental protection. Requirement of this section include fencing, locking master control valve, locking starter controls on each oil pump in off position when not operating or standby, cap or blank flange the loading/unloading connections, and provide facility lighting.

Fences should be designed to deter vandalism.

Master flow and drain valves and any other valve permitting outward flow from the container have adequate security measures. Manual locks, electronic or automatic locks, or whatever technology allows may be used.

Lock starter control or the building it's located in.

Secure or blank flange loading/unloading connections, quick disconnect fittings can be used. A secure cap is one that can be locked or some other method to deter vandalism.

List where keys are stored and who has keys.)

## 112.7(h) Tank Truck Loading / Unloading

((1) This applies to loading or unloading of oil from a tank truck or tank car. Secondary containment can be provided by dikes, berms, retaining walls, curbing, culverting, gutters, drainage systems, weirs, booms, other barriers, spill diversion ponds, retention ponds, or sorbent materials. Must provide containment where loading/unloading area does not flow to catch basin or treatment facility. Design containment system to hold maximum capacity of any single compartment of the tank truck.

(2) Some kind of alarm or warning can be provided by interlocked warning light or physical barrier system, warning signs, wheel chocks, vehicle break interlock system to prevent vehicle from departing until complete disconnection is made. This is an option but equivalent environmental protection must be provided.

(3) An inspection of lowermost drains and outlets of delivery trucks prior to filling or departure to prevent a discharge while in transit must be done. Cannot just pass on to vendor, owner's responsibility. This is an option and can provide equivalent environmental protection.

You must state reasons for nonconformance (2) and (3) and describe in detail alternate methods and how you achieve equivalent environmental protection.)

*Example of alternate procedures for (2) and (3):* Can post them, give to vendors to sign, have employees check each delivery. Vehicle fueling and tank truck unloading has the potential for spills. The following practices are suggested to reduce the potential for a spill:

- Make sure all vehicles are properly braked prior to fueling or unloading
- Keep the tanker truck within the unloading containment zone during unloading of fuel or oil products

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- Inspect all connections between the offloading truck and the tanks for leaks and tightness prior to unloading and prior to departure.
- Ascertain product level in tank prior to filling. Fueling or unloading should be constantly monitored. The tank should not be left unattended during any portion of the process.
- Drain the delivery hose of product prior to disconnection from the AST.
- Make sure all valves are closed.
- Upon fuel delivery, the tank installation and the area around the tank will be inspected for signs of product leakage and/or release.
- The driver must inspect his vehicle while still on the site for any discharges. Prevent liquid discharge in transit by inspecting lowermost drains, connections, hoses etc.

### **112.7(i) Brittle Fracture**

(Evaluate “field constructed” tanks whenever tanks undergoes repairs, alterations, reconstruction, or change in service that might affect the risk of a discharge or failure due to brittle fracture or other catastrophe. Evaluate the container for risk of discharge and take appropriate action if necessary. “Field constructed,” means a container that is assembled or reassembled outside the factory at the location of its intended use. “Catastrophic failures” are failures that result from events such as lightning strikes, dangerous seismic activity, etc. “Repair” means any work to maintain or restore the container to a condition suitable for safe operation. Repair includes the removal and replacement of material, re-leveling or jacking, repair of flaws, etc. “Alteration” involves cutting, burning, welding, or heating operations that change changes the physical dimensions or configuration of the container.

The requirement of this section is an option provided equivalent environmental protection by some other means of spill prevention, control or countermeasure. You must state reason for nonconformance and describe in detail alternate methods and how you achieve equivalent environmental protection. Does the District have field constructed tanks?)

### **112.7(j) Conformance with State Rules**

(Include in the plan a complete discussion of conformance with applicable requirements of discharge prevention and containment procedures listed in this part or any more stringent State rules, regulations, and guidelines.)

*Example language:*

Kentucky environmental law, KRS 224.01-400(11), provides that any petroleum or petroleum product release, except diesel fuel, in excess of 25 gallons over a 24-hour period, must be reported. The reportable quantity for diesel fuel is 75 gallons over a 24-hour period. However any release that causes a visible sheen, or that violates any provision of Section 311 of the Clean Water Act must be reported.

Any release falling within the above categories should be reported immediately to the Environmental Response Team (ERT) of the Kentucky Natural Resources Cabinet. The ERT phone number is listed on the Contact List in Table 2 and will be posted throughout the facility.

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A written follow up report may be required by the Cabinet, and must be submitted within seven days of the Cabinet's demand. The report must contain the following information: precise location of the release; name, address, and phone number of person in charge at the time of the release, name and address of persons having knowledge of facts surrounding the release; the concentration and quantity of the release; circumstances and causes of the release; efforts taken to control and mitigate the release; any harmful effects of the release; transportation characteristics of the medium or matrix into which the material was released; current or proposed corrective action; and any other information that may assist in the response at the site.

## **112.8 Specific Requirements for Onshore Facilities**

(Onshore facilities must also meet these specific discharge prevention and containment procedures. Your plan may deviate from the requirements of this section except 112.8(c)(2) and 112.8(c)(11), if you provide equivalent environmental protection by some other means of spill prevention, control or countermeasure. You must state reason for nonconformance and describe in detail alternate methods and how you achieve equivalent environmental protection.)

### **112.8 (b)(1) Facility Drainage / Diked Storage Area Drainage**

(The rule prescribes requirements for drainage from diked areas; it does not mandate the use of diked areas. If you use diked areas the rule prescribes minimum requirements for drainage of those facilities. You have to restrain the drainage from diked areas by valves to prevent a discharge into the drainage system or effluent treatment system not designed to control such discharge. Can use pumps or ejectors, but must be manually activated and must inspect the accumulation of water to ensure no oil will be discharged.)

### **112.8 (b)(2) Diked Storage Areas – Valves Used; Inspection of Retained Stormwater**

(Can only use valves of manual, open and closed design for the drainage of diked areas, no flapper type valves. If facility drains to watercourse you must inspect and may drain uncontaminated retained stormwater as provided in (c)(3)(ii), (iii), and (iv) of this section)

### **112.8 (b)(3) Drainage from Undiked Areas; Areas Subject to Flooding**

(Design facility drainage systems from undiked areas with a potential for a discharge to flow into ponds, lagoons, or catchment basins designed to retain oil or return it to the facility. The rules recommend, not require, that ponds, lagoons, catchment basins, or other facility drainage systems with a potential to discharge not be located in areas subject to periodic flooding.)

### **112.8 (b)(4) Diversion Systems**

(If a facility drainage is not engineered as in (b)(3), equip the final discharge of all ditches inside the facility with a diversion system that would retain the oil in the facility in the event of an uncontrolled discharge. The rule applies only to drainage from petroleum areas of the facility. This rule aims to retain within the facility minimal amounts of contaminated water in undiked areas subject to periodic flooding. A diversion system is to retain water.)

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### **112.8 (b)(5) Natural Hydraulic Flow, Pumps**

(Where drainage waters are treated in more than one treatment unit and such treatment is continuous, and pump transfer is required, provide two "lift" pumps and permanently install one of the pumps. You must engineer drainage systems to prevent a discharge in case there is an equipment failure or human error at the facility.)

### **112.8 (c) Bulk Storage Containers**

((1) Container material must be compatible with the oil stored in it and the conditions of storage of such as pressure and temperature.

(2) Construct all bulk storage containers so you provide a secondary means of containment designed to hold the entire contents of the largest single tank or container, and to allow sufficient freeboard for precipitation. Dikes, containment curbs, and pits are used for this purpose. Diked areas must be sufficiently impervious to contain the discharged oil. If a pit is used as a form of secondary containment, take measures to mitigate the effects of the pit on birds and wildlife, such as netting, fencing, or other means to keep wildlife away. Also, since a pit can discharge over the top or seep through the ground, don't use pits where a pit may be a source of discharge. Show freeboard calculations in plan. May also use a drainage trench enclosure that terminates in a catchment basin or holding pond.

(3) Drainage of rainwater. Do not allow drainage of uncontaminated rainwater from the diked area into a storm drain or discharge of an effluent into an open watercourse, lake or pond, bypassing the treatment system unless you (i) normally keep bypass valve sealed closed, (ii) inspect retained rainwater to ensure that its presence will not cause a discharge as described in 112.1(b), (iii) open the bypass valve and reseal it following drainage under responsible supervision, and (iv) keep adequate records of such events, for example any records required of any storm water permits. KPDES records can show compliance with this rule.

(4) Protect completely buried metal tanks installed on or after Jan. 10, 1974 from corrosion by coatings or cathodic protection, and regularly leak test such tanks.

(5) Do not use partially buried or bunkered metal tanks unless you protect them from corrosion by coatings or cathodic protection, and regularly leak test such tanks.

(6) Test each AST for integrity on a regular schedule and whenever material repairs are made. The frequency and type of testing takes into account the container size and design (floating roof, skid mounted, elevated, or partially buried). In addition to monthly visual inspections one of the following methods of integrity testing will be employed: hydrostatic testing, radiographic testing, ultrasonic testing, acoustic emissions testing, or another form of nondestructive shell testing. Inspections will be in accordance with industry standards. "Industry standards" includes a wide variety of organizations that have standards for inspecting welds and metal thickness. Examples are API Standard 653 "Tank Inspection, Repair, Alteration and Reconstruction", API Recommended Practice 575 "Inspection of Atmospheric and Low-Pressure Tanks" or Steel Tank Institute Standard SP001-00 "Standard for Inspection of In-Service, Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids." Inspect the containers' foundation and supports. Frequently inspect the outside of the container for sign of deterioration, discharges, or accumulation of oil inside diked areas. Maintain records of inspections and tests. Tanks which touch the ground must be evaluated for

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integrity. Small shop built containers in which internal corrosion poses minimal risk of failure, where all sides are visible, and that don't touch the ground, can get by with the monthly visual.

(7) Control leakage through defective heating coils by monitoring the steam return and exhaust lines for contamination from internal heating coils that discharge to open watercourse, or pass through settling tank, skimmer, or other separation and retention system.

(8) Engineer or update each container installation to avoid discharges. Provide at least one of the following: (i) high liquid level alarms with audible or visual signal, (ii) high liquid level pump cutoff device to stop flow at a predetermined container level, (iii) communication between container gauges and pumping station, (iv) fast response system for determining the liquid level of each container such as digital computers, telepulse, or direct vision gauges (if use this a person must be present to monitor overall filling of bulk storage container), (v) must test liquid level sensing devices to ensure proper operation.

(9) Observe effluent treatment facilities frequently enough to detect possible system upsets that could cause a discharge.

(10) Clean up of visible oil leaks. Promptly clean up any visible leak or spills found and promptly correct visible discharges that result in loss of oil including seams, gaskets, piping, pumps, valves, rivets, and bolts. Oil will promptly be removed from diked areas.

(11) Position or locate mobile or portable oil storage containers to prevent a discharge. Provide a secondary means of containment such as dike or catchment basin to contain largest single tank plus freeboard to contain precipitation.)

#### **112.8(d) Facility Transfer Operations, Pumping, and Facility Processes**

((1) Provide buried piping that is installed after Aug. 16, 2002 with a protective wrapping and coating. Must also provide cathodic protection or otherwise meet requirements of Part 280 of State program. If part of buried pipe becomes exposed for any reason you must inspection for deterioration. If damage found undertake additional examination and corrective action as required.

(2) Cap or blank flange terminal connections when such piping is not in service or in standby for an extended period of time.

(3) Design pipe supports to minimize abrasion and corrosion and allow for expansion and contraction.

(4) Regularly inspect all aboveground valves, piping, and appurtenances. Assess the general condition of such items such as flange joints, valve glands and bodies, expansion joints, catch pans, pipeline supports, locking of valves and metal surfaces. Conduct integrity and leak testing of buried piping at time of installation, modification, construction, relocation or replacement.

(5) Warn all vehicles of the overhead piping to be sure no vehicle will endanger the piping.)

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**1.1 TABLE 1 – PETROLEUM MATERIALS LIST FOR DISTRICT 5, LOT NO. 497, SHELBY COUNTY \***

Type of Oil	Location	Quantity (gal)	Type of Container	Secondary Containment (1)	Capacity (5)
Diesel Fuel	mobile (3)	90	steel	none	N/A
Gasoline					
Used Oil		300		none	
Motor Oil					
Hydraulic Oil	shop	55	steel drum	none	N/A
Machine Grease		120 # (4)			
Oil Distributor	mobile	1350		none	N/A
Tack Oil (2)	behind shop	?		concrete	?
Trucks	mobile	?	steel	none	N/A

\* based on meeting with Shelby Jett and Carl Henry

- (1) Secondary containment is required.
- (2) Tack oil container is empty with the electricity cut off. Still remains in calculations until demonstration made that the tank is abandoned and won't be used again.
- (3) For mobile tanks list what piece of equipment it is.
- (4) What size gallon container is this?
- (5) Convert feet or inches to gallons.

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District Engineer	Office
	Mobile
Operations Manager	Office
	Mobile

Office  
Office  
Mobile  
Pager

Office  
Emergency No.

Fire Department	Emergency Non-emergency	911
County Local Emergency Planning Committee (LEPC)	Day 24-hr	
Kentucky Emergency Response Team	24-hr Emergency Spill Hotline	(800) 928-2380
National Response Center	24-hr Hotline	(800) 424-8802

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### TABLE 3 - SPILL NOTIFICATION DATA SHEET

<b>LOCATION</b>	FACILITY NAME AND NUMBER		DATE	TIME		AM PM
	LOCATION ADDRESS		COUNTY			
	CITY/STATE/ZIP CODE		TELEPHONE			
<b>INCIDENT TYPE</b>	DATE AND TIME OF INCIDENT					
	TYPE OF MATERIAL DISCHARGED					
	ESTIMATED QUANTITY OF DISCHARGED MATERIAL					
	SOURCE OF DISCHARGE					
	DESCRIPTION OF AFFECTED MEDIA					
	CAUSE OF THE DISCHARGE					
	ANY DAMAGE OR INJURY					
	ACTIONS USED TO STOP OR REMOVE AND MITIGATE EFFECTS OF THE DISCHARGE					
	EVACUATION NECESSARY					
	<input type="checkbox"/> AREA SUPERVISOR NOTIFIED	DATE TIME	<input type="checkbox"/> DIST. MGR NOTIFIED	DATE TIME	<input type="checkbox"/> REG MGR. DATE NOTIFIED TIME	
	<input type="checkbox"/> ENVIRON. MGR. NOTIFIED	DATE TIME	NAME OF INDIVIDUAL TAKING REPORT DATE TIME			
Local Fire Dept. Notified	NAME OF FIRE DEPT.		NAME OF INDIVIDUAL TAKING REPORT	Rept.#	Date	Time
GOVT. AGENCIES NOTIFIED (if applicable)	NATIONAL RESPONSE CENTER (1-800-424-8802)		NAME OF INDIVIDUAL TAKING REPORT	Rept #	Date	Time
	STATE ERT (1-800-928-2380)		NAME OF INDIVIDUAL TAKING REPORT	Rept #	Date	Time
	OTHER – STATE / COUNTY, ETC.		NAME OF INDIVIDUAL TAKING REPORT	Rept #	Date	Time
<b>Incident Description, Action Taken, General Comments</b>						
Prepared by			TITLE	DATE		

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**APPENDIX 1**  
**COPY OF REGULATION 40 CFR Part 112**

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LV2002036/6 SPCC/03/22/05

**APPENDIX 2**  
**STATEMENT FOR PLAN AMENDMENT**

This statement is to be signed and kept with the SPCC Plan after the five-year review and evaluation of the Plan.

“I have completed a review and evaluation of the SPCC Plan for the \_\_\_\_\_ (District name) \_\_\_\_\_ on \_\_\_\_\_ (date) \_\_\_\_\_ and will / will not amend the Plan as a result.”

Signature \_\_\_\_\_

Print Name \_\_\_\_\_

Title \_\_\_\_\_

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## APPENDIX 3

### Site Inspection Form

Date/Time:			
Inspector:			
Weather Conditions			
Inspection Items	Yes	No	Comments
1. Are there any leaks or spills around any tank or drums?			
2. Leaks at valves, piping, or terminal connections?			
3. Is there any floor dry remaining from a clean up?			
4. Are there any leaks or spills around the oil/water separator?			
5. Vehicle inspections being performed?			
6. Any leaks or spills from the overhead piping, hoses, or guns?			
7. Is there discoloration, residue or other stains on the ground around the facility?			
8. Water in diked areas or secondary containment?			
9. Valves to drains from secondary containment locked?			
10. Training of employees performed annually or when new?			
11. Water in secondary containment have a sheen?			
If so, water cannot be discharged.			
12. Integrity tests required?			
13. Any alterations or change in uses of petroleum tanks?			
If so, plan must be revised.			
14. Has it been five years since the plan was reviewed / revised?			

Additional Comments:

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Is any action necessary to maintain compliance?

\_\_\_\_\_ No      \_\_\_\_\_ Yes

Explain action:

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## Certification

This is to certify in accordance with 40 CFR Part 112.3(d) that I am a licensed Professional Engineer and I have reviewed the Spill Prevention, Control, and Countermeasure (SPCC) Plan for \_\_\_\_\_(District Name)\_\_\_\_\_ and certify the Plan to be effective to satisfy the requirements of 40 CFR part 112. By means of this certification, I attest:

That I am familiar with the requirements of 40 CFR Part 112,  
That I, or my agent, has visited and examined the facility,  
That the Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of 40 CFR part 112,  
That procedures for required inspections and testing have been established, and  
That the Plan is adequate for the facility.

**This certification in no way relieves the owner or operator of a facility of his duty to prepare and fully implement the Plan in accordance with the requirements of this Part.**

**Certification:** \_\_\_\_\_

**Registration No.** \_\_\_\_\_

**Date:** \_\_\_\_\_

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